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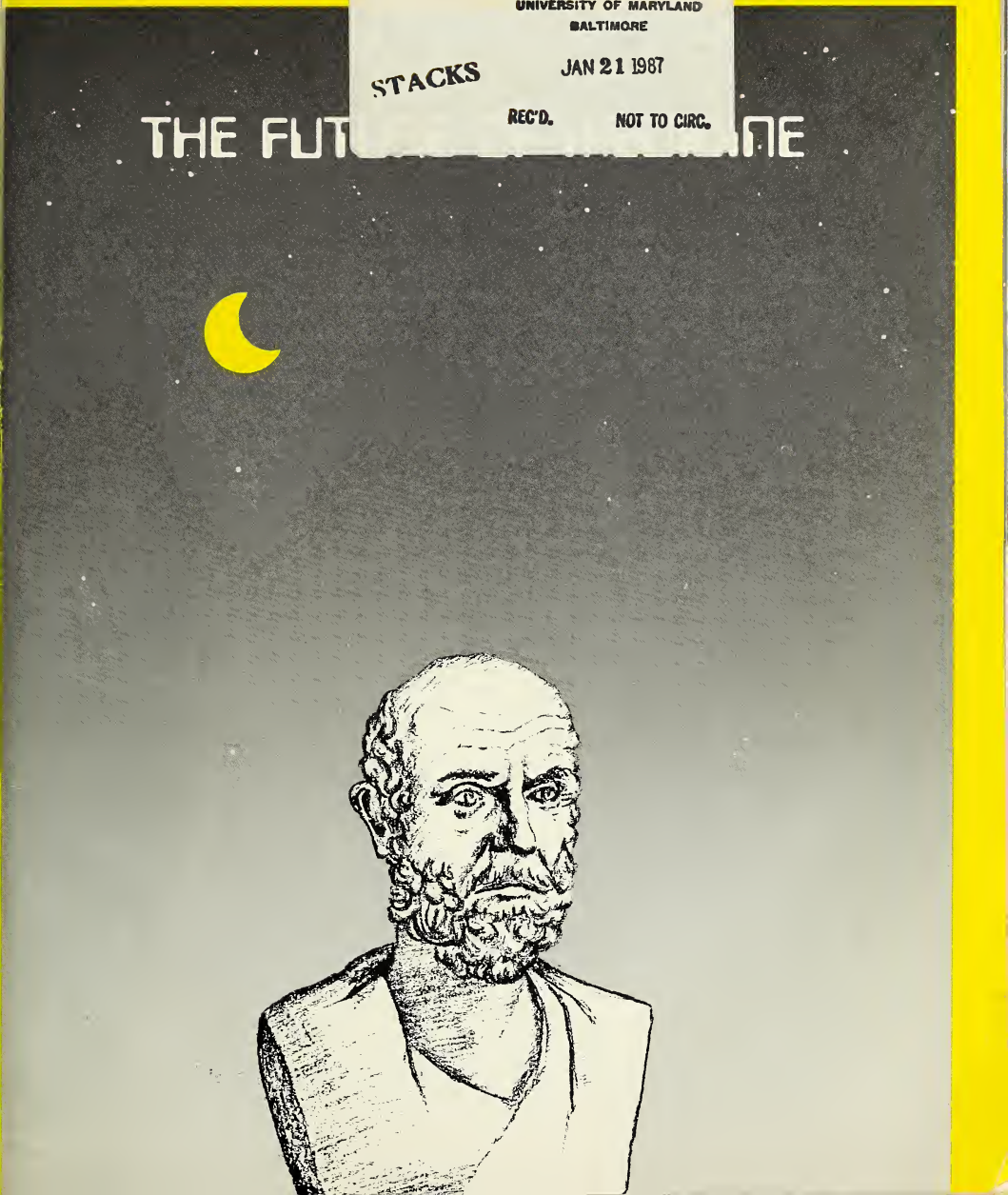
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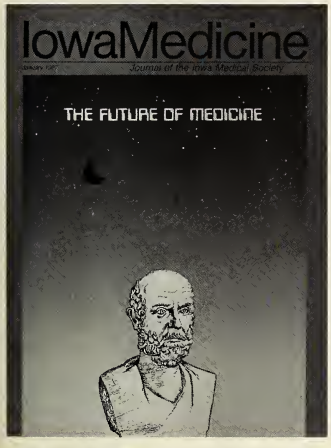
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ABOUT THE COVER



ABOUT THE COVER — This month's IOWA MEDICINE takes a look into the future of medicine. The cover symbolizes the beginning of medicine and the vistas which remain to be explored. Inside you'll find comments by AMA executive vice president; Iowa physicians and a medical student.

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UPDATE ON OPHTHALMOLOGY

FEBRUARY 11, 1987

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TOPICS:

"RADIAL KERATOTOMY"

"TEMPORAL ARTERITIS"

"PHOTOCOAGULATION IN MACULAR DEGENERATION"

"LASER PHOTOCOAGULATION IN DIABETIC RETINOPATHY"

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February 1987

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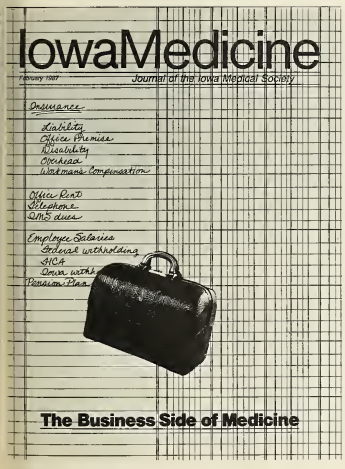
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ABOUT THE COVER



ABOUT THE COVER — As competition in health care delivery increases, so does the need for good practice management. This month's IOWA MEDICINE explores personnel and cash management, marketing and other key aspects of the business side of medicine.

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UPDATE ON LIPIDS DISORDERS

MARCH 4, 1987

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TOPICS:

"BLOOD LIPIDS"

"PATHOLOGY AND PHYSIOLOGY OF HIGH CARDIOVASCULAR RISK FROM DYSLIPIDEMIA"

"PRACTICAL APPROACH TO THE TREATMENT OF THE HIGH CHOLESTEROL PATIENT WITH DYSLIPIDEMIA"

"REVIEW OF PATHOLOGY OF BLOOD LIPIDS FRACTIONS"

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ABOUT THE COVER



ABOUT THE COVER — This month's IOWA MEDICINE focuses on medical specialties — new developments in key areas and socioeconomic challenges specialists face. (The physician figurines used on our cover were provided courtesy of Brodericks China and Gifts, Valley West Mall, West Des Moines.)

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"TISSUE PLASMINOGEN ACTIVATOR AND ANGIOPLASTY: RESULTS OF THE TAMI MULTICENTER STUDY"

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"AORTIC AND MITRAL VALVULOPLASTY"

"PERIPHERAL ANGIOPLASTY"

"PERIPHERAL ANGIOPLASTY: A RADIOLOGIST'S PERSPECTIVE"

ATTENTION CATH LAB PHYSICIANS:
A practical demonstration of coronary angioplasty is planned for April 7. Two angioplasties will be done in the Mercy Cath Lab with physicians taking part and observing. There will be a limit of 2 physicians per session. If you are interested, please call L. A. Iannone, M.D. as soon as possible at (515) 247-3042.

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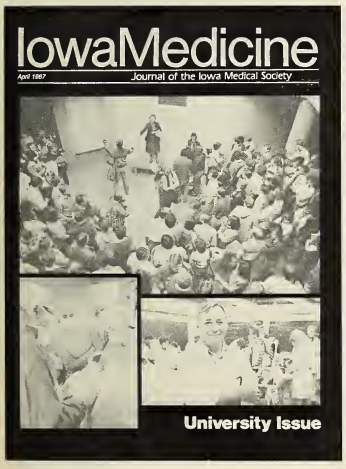
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ABOUT THE COVER — In keeping with tradition, the April issue of IOWA MEDICINE is devoted to the University of Iowa College of Medicine and Hospitals and Clinics. The photos on our cover depict the diverse and high quality education medical students receive at the U. of I.

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"UPDATE ON PRACTICAL PLASTIC SURGERY"

MAY 9, 1987

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TOPICS:

"OVERVIEW OF PRACTICAL PLASTIC SURGERY"

"HOW TO DO A PLASTIC REPAIR OF LACERATIONS"

"FACIAL INJURIES"

"BURNS"

"INJURIES OF THE HAND"

"PRACTICAL EXERCISES IN PLASTIC SURGERY FOR THE PHYSICIAN USING PIG'S FEET"

"COMMON PROBLEMS IN PLASTIC SURGERY FACING THE PHYSICIAN"

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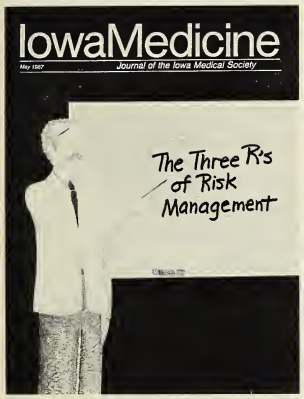
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This issue of IOWA MEDICINE is directed toward the three R's of risk management — records, rapport and reason. Authors discuss general problems and good risk management techniques in the office and hospital setting.

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MERCY HOSPITAL MEDICAL CENTER
DES MOINES, IOWA
PRESENTS

CARDIAC TRANSPLANT AND ARTIFICIAL BRIDGING DEVICES

JUNE 5, 1987

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SALT LAKE CITY, UTAH

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MEDICAL DIRECTOR
UTAH CARDIAC TRANSPLANT PROGRAM
UNIVERSITY OF UTAH
SALT LAKE CITY, UTAH

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DIRECTOR, BIOMEDICAL ETHICS CENTER
UNIVERSITY OF MINNESOTA
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DIRECTOR, CARDIAC TRANSPLANT PROGRAM
KELLEY KOCH, R.N., M.S.
ORGAN TRANSPLANT COORDINATOR
BOTH FROM:
MERCY HOSPITAL MEDICAL CENTER
DES MOINES, IOWA

TOPICS:

"JARVIK-7 THE TOTAL ARTIFICIAL HEART"

"IMMUNOSUPPRESSION IN CARDIAC TRANSPLANTATION: THE UNIVERSITY OF UTAH EXPERIENCE"

"THE ETHICS OF ORGAN TRANSPLANTATION"

"CLINICAL ADVANCES IN CARDIAC TRANSPLANTATION: A REGIONAL PERSPECTIVE"

"CARDIAC TRANSPLANTATION AND THE ARTIFICIAL HEART INTERFACE"

"CARDIAC TRANSPLANTATION: THE MERCY EXPERIENCE"

"CARDIAC ORGAN DONATION"

PANEL DISCUSSIONS

A.M.A. Approved for 6 hours Category I of the Physicians' Recognition Award of the American Medical Association.

Nursing CEU's: 0.7 (7 contact hours)

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MERCY HOSPITAL MEDICAL CENTER
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(515) 247-3042

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IowaMedicine
June 1987
Journal of the Iowa Medical Society

Too many? Too few?



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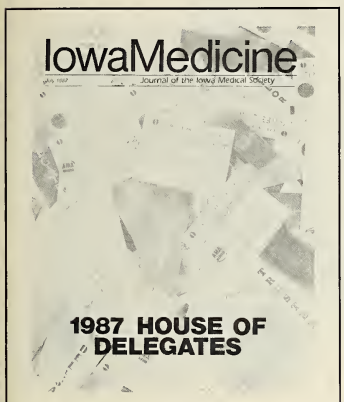
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PEOPLES DRUG

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About the Cover

The cover of this month's IOWA MEDICINE speaks for itself. The magazine contains articles exploring various aspects of teenage pregnancy, including an informative and eye-opening panel discussion on how society deals with this tragic problem. Anyone concerned about the health and emotional well-being of our youth will find interesting reading inside.

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MERCY HOSPITAL MEDICAL CENTER
DES MOINES, IOWA
PRESENTS

"CARCINOMA OF THE BREAST"

SEPTEMBER 9, 1987

GUEST FACULTY

JOHN DONAHUE, M.D.
JOHN WOODS, M.D.
DEPARTMENT OF SURGERY
MAYO CLINIC
ROCHESTER, MINNESOTA

P. R. JOCHIMSEN, M.D.
DEPARTMENT OF SURGERY
UNIVERSITY OF IOWA HOSPITALS/CLINICS
IOWA CITY, IOWA

EMMET KENNEY, M.D.
DEPARTMENT OF PSYCHIATRY
CREIGHTON UNIVERSITY
OMAHA, NEBRASKA

MARK WESTBERG, M.D.
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MERCY HOSPITAL MEDICAL CENTER
DES MOINES, IOWA

VERA STEWART, M.D.
DEPARTMENT OF RADIOLOGY
MERCY HOSPITAL MEDICAL CENTER
DES MOINES, IOWA

TOPICS:

"OPTIONS IN THE CLINICAL MANAGEMENT OF CARCINOMA OF THE FEMALE BREAST"

"BREAST RECONSTRUCTION"

"CURRENT STATUS OF RESEARCH IN BREAST DISEASE"

"PSYCHOLOGICAL ASPECTS OF BREAST SURGERY"

"CHEMOTHERAPY IN RECURRENT CARCINOMA OF THE BREAST"

"MAMMOGRAPHY, ULTRASOUND AND TUMOR LOCALIZATION"

PANEL DISCUSSION

A.M.A. Approved for 4 hours Category I of the Physicians' Recognition Award of the American Medical Association.

Nursing CEU's: 0.45 (4.5 contact hours)

A.A.F.P. and A.O.A accreditations have been applied for.

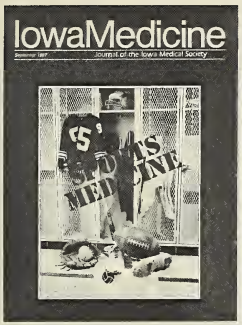
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Interscholastic athletic competition is an important part of education for many Iowa students, and keeping our young athletes healthy must be of prime importance. This month's issue on sports medicine contains articles regarding new techniques in caring for athletes and the physician's vital role in high school athletic programs. Athletic equipment in cover photo provided by Dowling High School, West Des Moines, Iowa.

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Des Moines, Iowa
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MERCY HOSPITAL MEDICAL CENTER
DES MOINES, IOWA
PRESENTS

"UPDATE ON OBSTETRICS AND GYNECOLOGY"

OCTOBER 7, 1987

GUEST FACULTY

LANE J. MERCER, M.D.
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY
UNIVERSITY OF CHICAGO
CHICAGO, ILLINOIS

ADEL KORKOR, M.D.
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY
MEDICAL COLLEGE OF WISCONSIN
MILWAUKEE, WISCONSIN

HOWARD ZACUR, M.D.
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JOHNS HOPKINS UNIVERSITY
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BRYAN D. COWAN, M.D.
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY
UNIVERSITY OF MISSISSIPPI
JACKSON, MISSISSIPPI

JOHN W. C. JOHNSON, M.D.
OBSTETRICS AND GYNECOLOGY
UNIVERSITY OF FLORIDA MEDICAL SCHOOL
GAINESVILLE, FLORIDA

TOPICS:

"CHRONIC PELVIC PAIN AND VOIDING DISCOMFORT"

"BONE MASS STUDIES IN OSTEOPOROSIS"

"EVALUATION OF SPONTANEOUS ABORTION: REPEATED MISCARRIAGES"

"WHERE HAVE ALL THE FORCEPS GONE?"

"TREATMENT OF ECTOPIC PREGNANCY BY CHEMOTHERAPY"

"AIDS IN PREGNANCY"

A.M.A. Approved for 4 hours Category I of the Physicians' Recognition Award of the American Medical Association.

Nursing CEU's: 0.45 (4.5 contact hours).

A.A.F.P. and A.O.A. accreditations have been applied for.

Physician Fee	$25.00
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MERCY HOSPITAL MEDICAL CENTER
DES MOINES, IOWA
PRESENTS

"PAIN RELIEF UPDATE '87"

NOVEMBER 7, 1987

GUEST FACULTY

STEPHEN E. ABRAM, M.D.
DEPARTMENT OF ANESTHESIOLOGY
MEDICAL COLLEGE OF WISCONSIN
MILWAUKEE, WISCONSIN

JOHN C. ROWLINGSON, M.D.
DEPARTMENT OF ANESTHESIOLOGY
UNIVERSITY OF VIRGINIA MEDICAL CENTER
CHARLOTTESVILLE, VIRGINIA

FRANCIS J. KEEFE, PH.D.
DEPARTMENT OF MEDICAL PSYCHOLOGY
DUKE UNIVERSITY MEDICAL CENTER
DURHAM, NORTH CAROLINA

THERESA FERRER-BRECHNER, M.D.
DEPARTMENT OF ANESTHESIOLOGY
U.C.L.A. MEDICAL CENTER
LOS ANGELES, CALIFORNIA

RICHARD NORTH, M.D.
DEPARTMENT OF NEUROSURGERY
JOHNS HOPKINS HOSPITAL
BALTIMORE, MARYLAND

TOPICS:

"OPTIONS IN MANAGEMENT OF MYOFASCIAL PAIN AND REFLEX SYMPATHETIC DYSTROPHY: RECOGNITION AND TREATMENT"

"COMPREHENSIVE MANAGEMENT OF ACUTE AND CHRONIC LOW-BACK PAIN WITH ROLE OF EPIDURAL STEROID INJECTIONS: FOLLOW-UP STUDIES"

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"EPIDURAL NARCOTICS AND DELIVERY SYSTEMS: TECHNIQUES AND CLINCIAL APPLICATIONS"

CASE PRESENTATIONS

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MEDICAL ETHICS

About the Cover

Scientific and technological advances in diagnosis and treatment of disease have created unprecedented ethical issues for physicians, patients and society. This month's IOWA MEDICINE contains thought-provoking articles exploring some of medicine's most crucial ethical issues. As our cover demonstrates, medical ethics is a subject of vital importance to Iowa physicians. Cover art by Sharon Johnson.

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540 **Patients, Physicians Seek Minister's Ethical Advice**
Medicine and religion share ethical values

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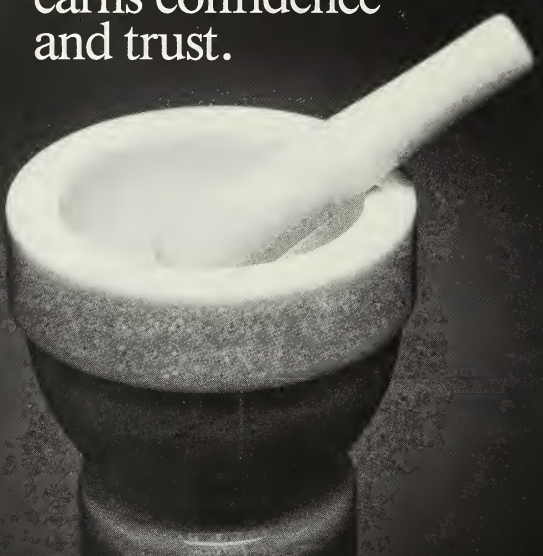
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About the Cover

Seven of Santa's most trusted helpers took time out from their rounds to pose for the cover of IOWA MEDICINE. Members of the IMS Board of Trustees extend warmest wishes for a happy holiday season. They are (Top, from left) Doctors Trimble, Rodawig and Youngblade; (Center) Doctors Walter and Caraway; and (Front) Doctors Linder and Aschenbrener.

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Health Care Coverage That Wasn't Born Yesterday

The changes in health care and health coverage in the last five decades have been tremendous. And, through it all, Iowa's Blue Cross and Blue Shield Plans have set the pace. All the while, we have worked diligently to help our customers get the most out of their health care dollars, to provide excellence in service and to give our members cost-efficient, quality benefits. Like Total Health Network of Iowa (THN), our innovative health maintenance organization...ALLIANCE, our aggressive benefit management program...Delta Dental Plan of Iowa...and Iowa Pharmacy Service Corporation.

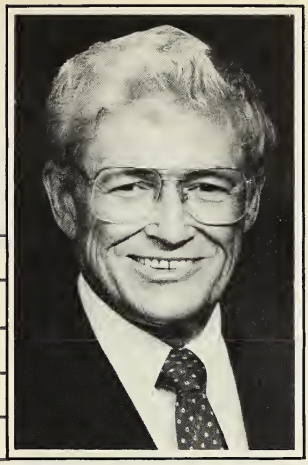
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PRESIDENT'S PRIVILEGE



NEW YEAR, NEW MOMENTUM

THROUGHOUT THE PAST few months, the liability issue has gathered momentum. The Iowa Alliance For Liability Reform, spearheaded by the IMS, has utilized the resources and manpower of concerned groups to draw attention to the crisis. As I write this, the legislature's Liability and Liability Insurance Commission is completing its deliberations; preliminary indications are the Commission will make specific recommendations to address the liability crisis.

On the eve of the January 12 convening of the Iowa General Assembly, the IMS has received encouraging news from a recent survey taken by the AMA. The survey, conducted with 1,510 adults nationwide, revealed the public is increasingly aware of the liability insurance crisis.

According to the AMA, "substantial majorities" now sympathize with physicians on many issues related to malpractice insurance and lawsuits. These findings are consistent with those of an August poll conducted by the Iowa Alliance.

If growing public awareness is an indicator, the hard work by many physicians of Iowa and nationwide is beginning to pay off. People are getting our message.

Our efforts to draw attention to Iowa's liability crisis must continue and intensify during the 1987 legislative session. Iowa's lawmakers must know how the crisis is affecting Iowa's patients. Only then can we hope for significant reforms.

L. D. Caraway, M.D.

L. Dean Caraway, M.D.
President

The Future of Medicine: Plan for Tomorrow

JAMES H. SAMMONS, M.D.
Chicago, Illinois

Medical progress has created its own set of problems for society. The author discusses the reasons behind these troublesome socio-economic issues and suggests we prepare better for the future.

I DON'T NEED TO TELL YOU over the years the world of medicine has changed a great deal. One thing that has not changed is the superb quality of American medicine. We enjoy a level of health care unsurpassed by any other country and unequalled by most.

Our medical advancements are best illustrated by the improved health of the American people. Average life expectancy in this country is now about 75 years, up from 47 years at the turn of the century. Of all people in the history of mankind who lived to be 65 or older, half are alive now. There are 28 million Americans 65 and older — more than the population of Canada.

However, progress has a habit of creating its own problems. I am particularly concerned about special problems at both ends of the age spectrum. Last month, a report based on an AMA "white paper" on child and adolescent health was presented to the AMA House of Delegates. This report contained 5 full inches of documentation and established broad health policies for the AMA. The policies have even broader implications for the profession as a whole.

The documentation contained one grim health story after another. The suicide rate among adolescents aged 12 to 18 has tripled in the last 20 years, although it recently decreased a bit. Such suicides can be traced to several physical and emotional causes. They include breakup of the family and family values in our increasingly mobile and superficial society. Parental divorces have taken their toll on children. Other factors include: a history of suicide in the family, early and unwanted pregnancy, biological changes and body chemistry, venereal disease and dependence on or addiction to alcohol and other drugs.

According to the American Academy of Pediatrics, about one million teenage girls — 10% of the total — become pregnant each year. About 650,000 young mothers are unmarried, 20,000 are 14-year-olds or younger and 400,000 have abortions. Alcohol and drugs kill 8,000 teenage drivers every year and seriously injure 40,000 more. About 6% of adolescents drink alcohol on a daily basis; 7% frequently smoke marijuana.

One illegal derivative of heroin can create the incurable symptoms of Parkinson's disease that leaves its young victims "frozen inside their own bodies." Almost 20% of high school seniors have tried cocaine and 7% use it monthly. Cocaine that is smoked — or "crack" — costs as little as $5-10 a dose and has become

Dr. Sammons is executive vice president of the American Medical Association. He is visiting associate professor of family medicine at Baylor University College of Medicine, Houston, Texas.

extremely popular with junior high and high school students.

I could go on with the litany of documented horrors. Consider child sexual abuse and pornography — known on the street as "kiddie porn." According to data gathered by the AMA, up to 25% of females are sexually victimized in some way by the time they reach age 13, often by members of their own families or other relatives. The sale of sexually explicit materials involving children, some toddlers, has become a multi-*billion* dollar-a-year industry.

Television generates adolescent health problems. Television is not only a vast wasteland; too often it is littered with random acts of gratuitous violence, mayhem and immorality. Children and adolescents habitually "glued to the tube" can eventually become *un*glued from life.

According to another AMA report, up to one and a half million children and adolescents are missing every year. Some run away; others are "throwaways" turned out by their parents. Street children are subject to a variety of health problems including exposure to the weather, poor diet and hygiene, random violence, drug and alcohol addiction, sexual abuse and exploitation, sexually transmitted diseases and respiratory and gastrointestinal disorders. Physicians are now routinely treating adolescents for problems previously found primarily among the elderly.

Moving to the other end of the age spectrum, elderly Americans also have special health problems — problems this country must address more effectively.

Ironically, these problems can be partially attributed to medical progress. At the turn of the century, we were powerless against infectious diseases such as typhoid, diptheria, tuberculosis and pneumonia. Medical progress, including development of various vaccines and antibiotic drugs, changed that. Cancer, heart disease and stroke are now the most prevalent and feared killers. This is true because we have made such progress in conquering so many of the other health problems.

Through such conquests, we have extended longevity to the point where cancer, heart disease and stroke have become real possibilities. Even here we are making heartening medical inroads.



Dr. Sammons raises some troubling questions regarding "corporate medicine."

Progress in medicine carries a high price tag, especially in the hospital. Not long ago, cost was not the problem it is today. In the golden socio-economic 1960s, private and public coffers overflowed. We built more hospitals and medical schools which graduated more physicians. The number of allied health professions increased to operate the paraphernalia needed to deliver patient care.

Meanwhile, legislators at every level of government were jumping on the Great Society bandwagon. It made good social music. It made good politics. It garnered votes since entitlements were given to just about everyone. In the private sector, employees — unionized and otherwise — demanded first-dollar insurance coverage and pie-in-the-sky benefit packages. Employers were quick to agree. Hospitals and physicians gave patients whatever they wanted.

During the cloudy economy of the late 1970s, health care bills kept building up and started coming due; government budget deficits mounted. Government's answer to the cost

(Please turn to page 8)

problem was deep cuts in projected expenditures for health programs and more cuts are coming. The latest avenue of control is through prospective pricing.

The government has mandated hospitals and physicians closely monitor — and whenever possible limit — utilization of hospital services. In the private sector, coverage under health insurance benefit packages has been pruned and employees pay higher co-payments and deductibles. Another result of cost pressures is intensified competition in an already competitive health care marketplace. Hospitals and physicians are competing with each other and other providers.

"This nation can no longer afford — if it ever could — to have the left hand not knowing what the right hand is doing."

There has been rapid growth in less-expensive alternatives such as Health Maintenance Organizations. Surgicenters, emergicenters and shopping center storefront clinics are springing up everywhere. Delivery of care is shifting from the solo practitioner's office to medical groups, hospitals and other institutions.

It has become customary to refer to the health care system as a "business," the "medical industrial complex" or "corporate medicine." This raises troubling questions. If health care and hospital systems are eventually taken over by large corporations as some have predicted, will physicians and other health professionals be as concerned about the quality of patient care? Will the nation be able to afford new technology and medical techniques? If health care is an industry, will physicians become mere technicians?

This does not mean physicians and hospitals can ignore cost problems or allow overutilization of services; but to expect high-quality medical care despite deeper cuts in financing is a pipe dream. All indications are health care financing problems will get worse before they get better.

A National Center for Health Statistics report predicts average life expectancy in this country will reach 80 just after the turn of the century. The same report estimates the number of people with chronic health problems will increase from 32 million to 46 million; the number of doctor visits per year will jump by 318 million to 1.4 billion. Hospitalization will increase 48% to an annual 407 million days; the number of nursing home residents and the cost of their care will more than double over $30 billion a year. All of this will take place in a constrained financial resource environment.

This nation has not prepared itself, from either side of the age spectrum, for what's happening and what's coming. We are unprepared for events that can precipitate a full-blown crisis.

I think we all recognize the steak and salad days of our health care past are gone. For several years, we have been working with concerned public and private institutions to hold the line on cost increases. We have developed what we believe are effective, efficient and equitable proposals to finance care for the young, the old, the homeless, the unemployed and the uninsurable.

We have to do more. Two top priorities in the AMA center on special problems associated with adolescent health and health problems of older Americans. We're doing much more than collect documents to gather dust. We are gathering documents to measure the full extent of the problems. This is something that has not been done before, except on a here and there basis. When it is done, we will go to the people and organizations who published the documents and get them to help us fashion *cohesive* and *comprehensive* approaches to the problems I have mentioned.

This nation can no longer afford — if it ever could — to have the left hand not knowing what the right hand is doing. You will be hearing much more about what we are trying to do in the coming months and years.

What about corporate medicine and the likelihood the entire system will eventually be controlled by a handful of conglomerates? I can't provide a final answer. Nor can I tell you how it might affect the quality of patient care. I can provide you with reasons to doubt it will happen. The sheer diversity of our social, political and free enterprise philosophies, demographics and geography seem to preclude it. Our government and legal systems seem to preclude it. If a few conglomerates are not allowed to monopolize telephone service, is it likely they will be allowed to control medical

service, an infinitely more human and personal service?

I think physicians and patients would preclude it. Patients and physicians want more medical progress, not less. Because patients are human beings, I do not believe physicians will ever be just technicians or prisoners of technology. I have been in medicine far too long, and have met thousands of skilled, caring colleagues, to ever believe that.

More than 100 years ago, the British statesman Benjamin Disraeli said, "The health of the people is really the foundation upon which all their happiness and all their powers as a state depend." What we have built is a high and beneficial plateau of better health and a better quality of life for our people.

In the last analysis, no matter how patient care is financed or in what forms it is delivered, I believe this nation will continue to believe nothing is more important.

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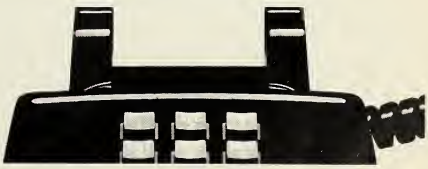
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The ADS Revolution: What's Ahead For Iowa Physicians?

LEO A. MILLEMAN, M.D.
Ames, Iowa

America is in the throes of a medical revolution. The author discusses the future of alternate delivery systems and potential ramifications for Iowa physicians.

BECAUSE OF FORCES operating in the U.S., most of what you are about to read will happen by the early 1990's. We are in a medical revolution. The warring parties are new technology, growing numbers of physicians, limited patient resources and business ethics applied to the once sacred art and science of medicine.

One cannot predict exactly how Iowa physicians will fit into this revolution. One can more accurately predict strategies and battlegrounds. Physicians need to understand not fear change. Patients need assurance physicains will be their advocates.

What Will and Will Not Happen

One of 4 physicians will not be practicing in the 1990's. Business ethics will guide medical practice. Competition for patients will increase. Capitation will increasingly replace fee-for-service. Several large "Super Meds" will control national health delivery, with regional groups functioning under this umbrella. Physicians will organize regionally. Alternate delivery systems will grow. Vouchers may be issued for Medicare recipients. IRAs may be purchased for health care during retirement. Home health care and diagnostic aids will reduce office visits. Physicians will be financially responsible for patient outcomes. Local voluntary groups will compete for and administer a fund of money for health care. Various tiers of health care will exist. The liability crisis will be controlled but not eliminated. Data on physician practice patterns will be more public. Most physicians' incomes will decrease; medical administrative costs will increase. HMOs will not replace hospitals. Multidisciplined health care industries will offer triple options: an HMO, fee-for-service or combination package. Economics will mandate stronger peer review and quality assurance.

In the near future, some "will not happen" predictions may strengthen these positions. There will not be national health insurance. The government will not take over medical care, it can't afford it. Hospitals will not control all physicians. Because health care is a personal service, it will not become a public utility. Agencies can sell medical care but only physicians can deliver it.

Three points support these statements: (1) Current demographics (2) The Medicare scene and (3) Local business aspects of medicine.

Current Demographics

In 1986, 25% of physicians were involved in some type of alternate delivery system (ADS). Half of physicians in practice less than 10 years

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Dr. Milleman, a urologist, is chairman of the IMS Committee on Alternate Delivery Systems.

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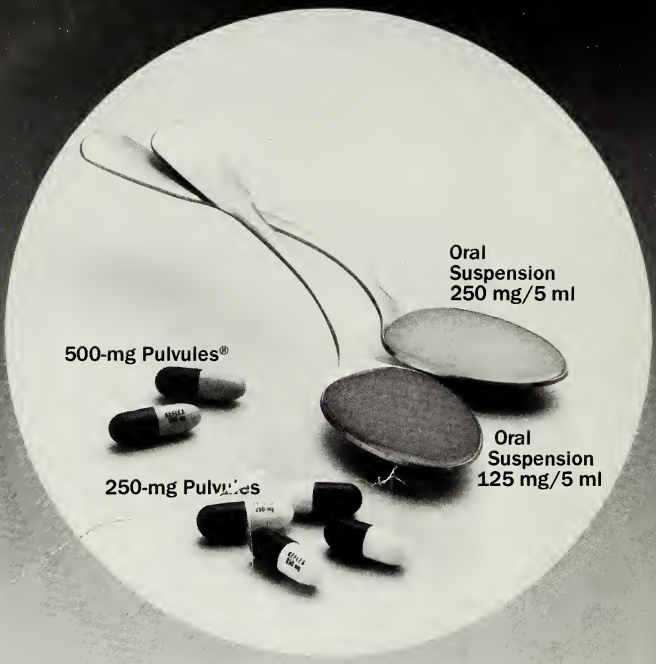
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are in an ADS environment. Only 7 states have no HMOs. Based on current trends, 50 million people will be enrolled in alternate delivery systems by 1990. A Rand study shows HMOs can offer 25% cost savings over fee-for-service practices. HMOs are competing for business. Unlike 2 years ago, most Wall Street stocks in the HMO business are down. Some are merging or selling to other organizations.

Iowa was once thought to be immune from ADS activities. Today nearly half of the 3,000 practicing physicians are involved in an ADS. There are 9 alternate delivery systems; 7 others have licenses pending. From 1980-83, areas with HMOs showed a decrease in hospital utilization from 950 to 450 patient days per 1,000. Fee-for-service practices have followed ADS trends. Current statistics show cost savings due to decreased hospital utilization have stabilized. New ways must be found to save money. Physician reimbursement is a targeted area.

In 1965, there was 1 physician for every 750 people in the U.S. By 1995, that number could be 1 per 350. The number of practicing Iowa physicians has remained steady. Our population is decreasing and aging. Iowa's health costs, controlled for 2 years, increased 11% last year. Several factors are to blame, including broadened insurance coverage, defensive medicine, cost shifting to outpatient testing, new services and technology and Iowa's aging population.

Health is America's second-leading business after defense. Health care costs continue to rise faster than the rate of inflation. It cannot go on indefinitely.

Medicare: 1986 and Beyond

The government pays for over 40% of all health care. Most is consumed in the last year of life. The Medicare market sets the trend for the health care industry. Thus, most physicians and hospitals cannot ignore Medicare regulations.

Deputy Health and Human Services Secretary Gene Hackbarth has made these statements summarizing the current administration's health care policy: (1) Government and providers will strive for the highest possible health standards (2) Health care costs must be contained or complete regulation of fees and services will occur. (3) The government must get out of the *practice* of medicine.

The agenda calls for Medicare to move toward capitation. A fixed fee will go to a "group" that will provide the total health care of enrollees. Local providers will organize to provide medical service and disperse payments to hospitals and physicians. The group will perform peer review and quality assurance. The trend toward capitation will develop slowly. Initially patients will have a choice, but the government believes more people will eventually choose capitation because of its efficiency and increased service. People will be willing to limit the choice of providers for this increased service.

Medicare wants to increase membership in its federally-qualified HMOs and Competitive Medical Plans (CMPs). Within 5 years, Medicare enrollment in HMOs and CMPs will encompass 25% of the market.

Nobody is pushing DRGs for physicians. In 1984, mandatory assignment was defeated and replaced by a fee freeze. The fee freeze ends in 1987. More changes in Medicare reimbursement are coming. Based on excess charging assumptions, rates for some procedures will be lowered.

HCFA and Congress are aware of geographic cost disparities. So far, constituents and lobbyists have convinced Congress to leave higher cost areas alone for fear reducing costs could deny access to care.

A Medicare voucher system will be slow in coming as it rewards the healthy and the very ill must be treated first. The fate of a relative value scale for services hinges on results of a HCFA study. Government is leaning to mandatory Medicare assignment.

The Iowa Scene and Business in Medicine

Iowa is not immune to medical change. Our population is aging. There are no new markets; we can only rearrange existing ones. Few hospitals can survive without Medicare payments. Physician reimbursement is tied to Medicare legislation. Iowa's Medicaid program announced its first HMO contracts last fall. They will continue. The Health Policy Corporation of Iowa (HPCI) has endorsed competition in the health care market. The goal is to make employers and employees prudent health care buyers by offering choices. If achieved, unnecessary services will be eliminated and efficiency rewarded. Alternate de-

livery systems are advocated as a way to offer quality medical care and contain costs.

The advantage of an ADS, especially a capitated plan, is costs are budgetable. Budgets give employers and employees a basis to negotiate contracts. Payments for fee-for-service medical care are not budgetable because there are not limits on the amount of service. Private business and the government have limited funds. They cannot afford double digit increases in health care costs.

At the heart of most health care legislation is data collection and publication. I challenge Iowa physicians to use this data. Ask to see small area analyses. Ask the Iowa Data Commission for information. Check on yourselves and your hospitals.

Last fall, the Joint Commission of Hospital Accreditation announced it will include data on clinical outcomes in upcoming reviews. Morbidity and mortality rates for hospitals and physicians may soon be public. A major life insurance company now sells a computer package that can predict the average expense involved in reaching a diagnosis. Physicians have a right to see such data. Enlightened awareness is better than quiet ignorance.

Quality assurance is vital in any business, including health care delivery. Litigation is one type of policing agent, but not an effective one. Awards and insurance premiums are exceeding the "budgets." Nonmeritorious lawsuits are generating data to support the physician's viewpoint. Massive awards and nonmeritorious claims must be limited before regulation is mandated for both the medical and legal professions.

HCFA and private business believe peer review is the only method of assuring quality. The IFMC supports this concept. Though the IFMC is sometimes accused of turning on the physicians who founded it, its PRO contract was one of few extended for another 2 years. This fall, the IFMC began legislatively mandated review of outpatient records for Iowa HMOs. With more groups competing for capitated markets, outpatient chart review may spread to other areas. The DRG system has made Washington more aware the human element is necessary in judging the delivery of health care. Washington's answer is to shift the responsibility to the local level. Legislators from Washington dictate the system, but blame for problems falls locally. If you don't play the game, you won't collect.

Sources of Information

Physicians must keep abreast of the marketplace. The AMA News is one of the best sources of accurate and timely marketplace information. To learn what is happening in Iowa, call the Insurance Department for listings of entities filing for ADS licensure. The Iowa Medical Society has done its best to keep abreast of the changing environment. This issue of IOWA MEDICINE includes an insert with current data on Iowa ADS activities.

In the new market force environment, medical schools may need prerequisites in propaganda analysis and business accounting. For physicians, the future will bring more change. Unfortunately, the day of the individual physician being all things to patients seems to be ending.

First and foremost, physicians should be patient advocates. Patients need guidance. Previously patients depended on providers to make decisions without cost considerations. In the new arena, cost constraint risk is applied to consumer and provider. We cannot ignore fiduciary factors because they will guide our patients. The physician will determine the need for medical care and document it so peers can understand it. Because there will be more risk-sharing by physicians in any plan, profit will be a consideration.

These things will happen because there is not enough money anywhere to let medical costs spiral. The health care budget will always be a large part of our gross national product. We may eventually have physician unions, complete regulation and government medicine, but not yet. One can only predict the next 5-7 years. So far we have chosen private enterprise, business and competition. Complete regulation would be short-lived and fraught with inefficiencies. Trade embargoes and fee freezes are examples.

I encourage Iowa physicians to be involved and have a voice as patient advocates and health care providers. If competition is the game, no one can compete better on behalf of patients than physicians.

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Health Care in Iowa: Where Are We Heading?

DONALD W. DUNN
Des Moines, Iowa

Competition and market forces have become a pivotal influence on Iowa's health care system. Here the author discusses the negative impact cost containment efforts may have on future health care delivery.

"We are into a period of accelerating change on the health care field that is essentially unplanned, undirected and uncontrolled. It can fairly be described, I think, as a confused scramble in response to the mounting pressure upon the cost issue. Survival, not community service, is the dominating theme." — *David Kinzer*

"It challenges the sensitivities of every conscientious person and compels the concerned American to engage in matters of public policy. If present trends in health care allocation continue, we can expect an increasing threat to our physical well-being, our lives, and our humanity. Individuals and families will become grist for competing forces — squeezed by government and employers attempting to contain health care costs for society's fiscal well being." — *Grace Long*

COMPETITION has come to Iowa. A Blue Cross-Blue Shield spokesperson recently said, "Blue Cross and Shield is the leading carrier in the state. We must offer multiple approaches and the triple option to employer groups. Without those products, we will lose our 35% market share." Triple option is insurer's jargon for an insurance package including indemnity, HMO and PPO coverage.

Blue Cross sees itself as a competitor, not a hospital service corporation. Blue Shield sees itself as a competitor, not a physician service corporation. Within BC/BS, in hospital circles and in physician meetings, we hear discussion of whether BC/BS should merge and become a mutual insurance company.

In the September 18, 1986 NEW ENGLAND JOURNAL OF MEDICINE, health economist Eli Ginzberg authored an article entitled "The Destabilization of Health Care." Ginzberg notes for 6 decades beginning with the Flexner Report in 1910, the system enjoyed remarkable stability. It could, he says, "adjust to new opportunities, and the underlying structure protected and fostered important societal values." The article examines forces causing destabilization over the past 15 years, noting "we are pursuing contradictory policies that are adding to our problems."

In hospital circles we used to talk about provision of care to all. How do we assure it? How do we meet the unmet needs? How do we avoid unnecessary duplication? How do we design a community health plan?

Now hospital jargon is different. The talk centers on maintaining and increasing our market share. We're into competition, market forces and market penetration for those with ability to pay. Only those with ability to pay.

The new environment embraces alternate

Mr. Dunn is president of the Iowa Hospital Association.

delivery systems, HMOs and PPOs. Currently, there are 12 HMOs and PPOs in Iowa. Collectively they have over 160,000 enrollees. In 1980 there were less than 10,000 enrollees. Alternate delivery systems (ADS) change financial incentives for providers. Where providers previously were rewarded for delivering more care, under an ADS there are financial rewards for delivering less care. The ADS is the darling of BC/BS, the public sector (Medicaid) and others hoping to control health costs for their beneficiaries. It is the competitive mechanism.

"We will probably have fewer than 125 hospitals in Iowa in the future. We will have fewer and fewer acute care hospital beds."

Kinzer has 10 "testing questions" including: How are we going to finance graduate medical education in our hospitals?; How can we achieve an effective blend of medical and social services in our hospital?; and What is the appropriate level of government for the financing of health services for the aged, the poor and the disabled?

Ginzberg is not reassuring: "My greatest concern is we have been pursuing contradictory policies that are adding to our problems. The competitive market is an opponent, not an ally, of cost containment. When capacity increases, advertising and marketing increase, the boundaries of the system are expanded, duplication of costly services is encouraged and the public is pushed to consume more health care services than it needs. Companies that are self-insured and press for experience-rated premiums make it more difficult to bring poor patients into the system and to keep them there. Neither competition nor cost containment will ensure the maintenance of medical research and medical education, on which further advances in therapeutics depend. Continued destabilization must be slowed and then reversed if we are not to undermine what has proved to be a highly satisfactory and effective system of care for most Americans."

In the Fall, 1986 MILBANK QUARTERLY, health economist Victor Fuchs writes: "Over the long run, the current reimbursement revolution is likely to change every aspect of the health care system: medical practice, medical education, medical research. Moreover, the effects are likely to vary greatly among patients by age, income, and employment status, and among hospitals and physicians by type, location, and specialty. The debate over whether cost containment has gone too far has already begun."

It is difficult to be sanguine about our direction; but a review of the literature indicates an awakening to weaknesses and challenges inherent in the competitive health care marketplace.

Larry Lewin writes: "The effect of competition on the hospitals heavily burdened with indigent patients is, as expected, strongly negative. The government is clearly not going to take over the indigent care burden."

The Washington Business Group on Health publication BUSINESS AND HEALTH has devoted space to the problem of those "left out" of the system.

Stanley Jones has written insightfully about the 2 missions of the hospital: its business mission and its community service mission. He speaks to the challenge of balancing the 2 missions in the current environment. Areas of hospital management where the missions are not easily balanced include deciding what services to offer, what patients to serve, how much to compete with other hospitals and providers and how to allocate financial resources to meet the needs of the hospital, the system and the community.

Medical practice, responding to regulatory and competitive forces, has changed and is changing. There is reduced dependence on inpatient care. We will probably have fewer than 125 hospitals in Iowa in the future. We will have fewer and fewer acute care hospital beds. A concern is competition will force an irrational downsize of the system from the perspective of assuring access and high quality care. We worry with Ginzberg the destabilization may undermine an effective system of care for most Americans.

What will be the legacy of doctors and hospitals for the next decade and the next century? Answers to the tough questions will shape that legacy. This discussion does not address ethical issues relating to life, birth, death and medical capacity; but economics and ethics are inextricably intertwined. Finding a way to provide health care for our citizens in the future, demands thoughtfulness, commitment and leadership.

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Look Into the Program Before the Open Enrollment Ends March 1, 1987

Cindy Baumgartner

QUESTIONS AND ANSWERS



How Tomorrow's Doctor Sees Tomorrow

How do today's medical students view their future in the medical profession? Cindy Baumgartner, Manchester, sophomore at the University of Iowa College of Medicine, discusses why she chose to become a physician and her expectations about the future

In what setting do you expect to practice medicine? Describe how you envision your practice?

I hope to practice in a hospital or a group setting. I do not think work hours or expectations of quality will be much different in the future. I expect HMOs will have found their place, physician assistants may be more prominent and a larger portion of my patients will be elderly. Within the next decade, physicians may visit adult daycare centers. Computers will definitely be part of my practice. I will not be surprised if someday my lab work is analyzed on an electron microscope.

In your opinion, what current trends in medicine might have a negative impact on health care in the future? Which ones might have a positive impact?

Iowa's medical malpractice crisis seems to be the least positive trend. Lawsuits against competent physicians and defensive medicine are adding to stress of Iowa physicians. Of particular concern are primary care physicians who have stopped practicing obstetrics and patients who must bear the loss of accessible health care. Students at the U. of I. College of Medicine are aware of the problem and are changing career decisions accordingly.

Another critical issue is the growing elderly population and the future need for home health care. A physician making house calls 80 years ago had all that was needed in a black bag. Today's medical standards often require access to EKG machines and a laboratory. Tomorrow's physician may be pressured to deliver home health care as well as being required to deliver office-quality care of the '90s.

On a positive note, malpractice litigation has improved office record-keeping. Students are being taught the importance of risk management and patient relations.

Do you believe more women physicians will change the practice of medicine?

I do not believe medicine will change as more women enter the profession. Male and female students alike are dedicated to practicing effective medicine. I have felt no gender discrimination from my classmates and am aware of one medical school where anatomy students change clothes in the same large room. I am either ignorant of the situation or the upcoming generation of physicians realizes a person's head and heart are more important than gender.

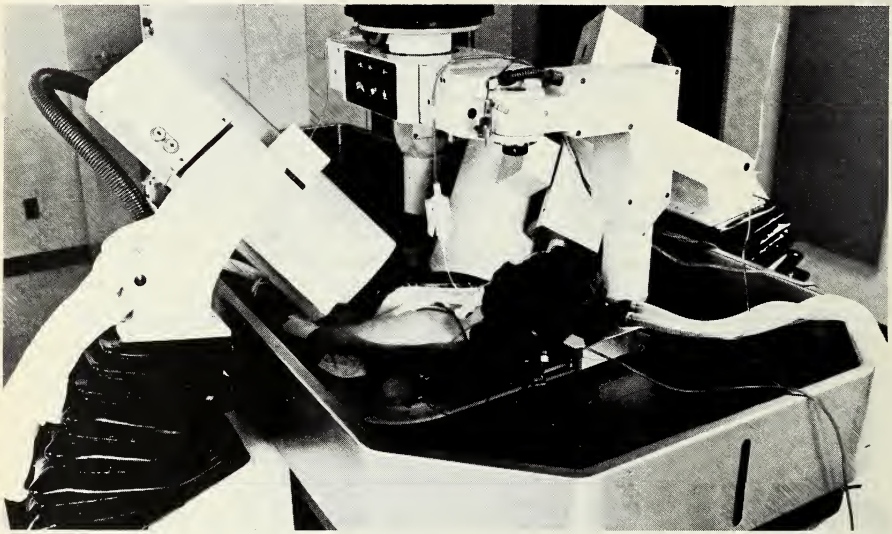
Why did you choose medicine as your career?

I decided to become a doctor when I was a junior in high school, partly because I wanted to function independently. Time and further education have taught me those days are

(Please turn to page 22)

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Wandering Spleen in a Child

DONALD L. McCORMACK, M.D.
WILLIAM R. BLISS, M.D.
Ames, Iowa

Wandering spleen, a rare condition more common in women than men, can be either congenital or acquired. Though not often found in children, this case report examines a 13-year-old female patient.

WANDERING OR ECTOPIC SPLEEN is a rare condition which is most unusual in children. Preoperative diagnosis, while possible with radiographic techniques, is uncommon because the diagnosis is seldom suspected.

Case Report

A 13-year-old mentally retarded Caucasian female was referred to the McFarland Clinic in Ames, Iowa, for evaluation of an abdominal mass associated with recurring episodes of abdominal pain and constipation. The patient had been examined for the same symptoms and findings at the University of Iowa four years before and at the McFarland Clinic two years before the present visit. Each time the mass was described as smooth, nontender, and easily movable. The size was estimated to be 4 x 6 cm on one occasion and as 7 x 10 cm on another occasion. On both visits the mass disappeared after enemata and was thought to be secondary to constipation.

The patient complained of some abdominal discomfort at the time of the present admission. She denied any symptoms referable to the urinary or gastrointestinal tracts.She had been taking mineral oil every day for constipation and was moving her bowels every other day. Physical examination revealed an 8 x 10 cm nontender, nonlobulated, smooth mass in the midline of the abdomen.

Urinalysis, complete blood count, and SMA-12 were normal. Cathartics were given but had no effect on the mass. Intravenous pyelogram and barium enema with fluoroscopy revealed a ground-glass mass in the left pelvis which displaced the sigmoid colon superiorly and to the right. These studies also revealed the cecum to be in the right upper quadrant of the abdomen.

Subsequent examination during the hospitalization demonstrated the mass to be highly mobile. At various times it was palpated to the left of the midline just above the umbilicus, in the left lower quadrant of the abdomen and

Dr. Bliss is a retired general surgeon. Dr. McCormack will begin an ophthalmology residency at the U. of I. College of Medicine in January.

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR THE MONTH OF JANUARY 1987

on the right side of the abdomen. Definitive diagnosis could not be made from laparoscopy.

Exploratory laparotomy revealed a severely congested spleen with multiple areas of infarction in the left pelvis. The splenic pedicle consisted of large, tortuous vessels. The pedical measured 25 cm in length and up to 2.5 cm in diameter on its longitudinal axis. The veins within the pedicle were markedly dilated. There were no peritoneal or ligamentous attachments to the spleen. The organ weighed 698 grams. There were 3 areas of focal infarction, presumably due to intermittent obstruction of the splenic pedicle. The infarctions were probably the etiology for the recurring abdominal pain.

The spleen was removed without complications. The patient's postoperative course was uneventful.

Discussion

In 1933, Abell reviewed 97 cases of the rare surgical condition known as wandering-spleen.[1] The most common presenting symptom was a palpable abdominal mass characterized by unusual mobility. The condition was 13 times more common in women than in men; most patients were between the ages of 20 and 40. In 1976, Caterine, Polich and Cleave, in an extensive review of this condition, stated less than 400 cases had been described in the world literature.[2] They estimated less than 15 cases of children with wandering spleen had been reported at that time. Since that publication, 21 cases, including the one above, have been reported.[3-10] Eight of these 21 patients were under 15 years old.

Wandering spleen may be either congenital or acquired. Defective development of the dorsal mesogastrium in the fetus may lead to elongation of the splenic pedicle and the abnormally mobile cecum and ascending colon, often associated with wandering spleen.[2] Acquired conditions causing either splenic enlargement or laxity of the supporting ligaments or abdominal wall may also lead to wandering spleen.

The preferred method of diagnosis of wandering spleen is radionuclide scan, although diagnosis has been established preoperatively by selective coeliac angiography and ultrasound. Exploratory laparotomy is the usual method of diagnosis because the condition is not suspected.

The spleen should be removed if discovered at the time of surgery to eliminate the possibility of acute torsion of the pedicle. Removal of pelvic spleens is recommended, especially in women of childbearing age to prevent splenic rupture by the enlarging uterus during pregnancy.[11]

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References noted in this article are available either from the author or the editors of IOWA MEDICINE.

QUESTIONS AND ANSWERS

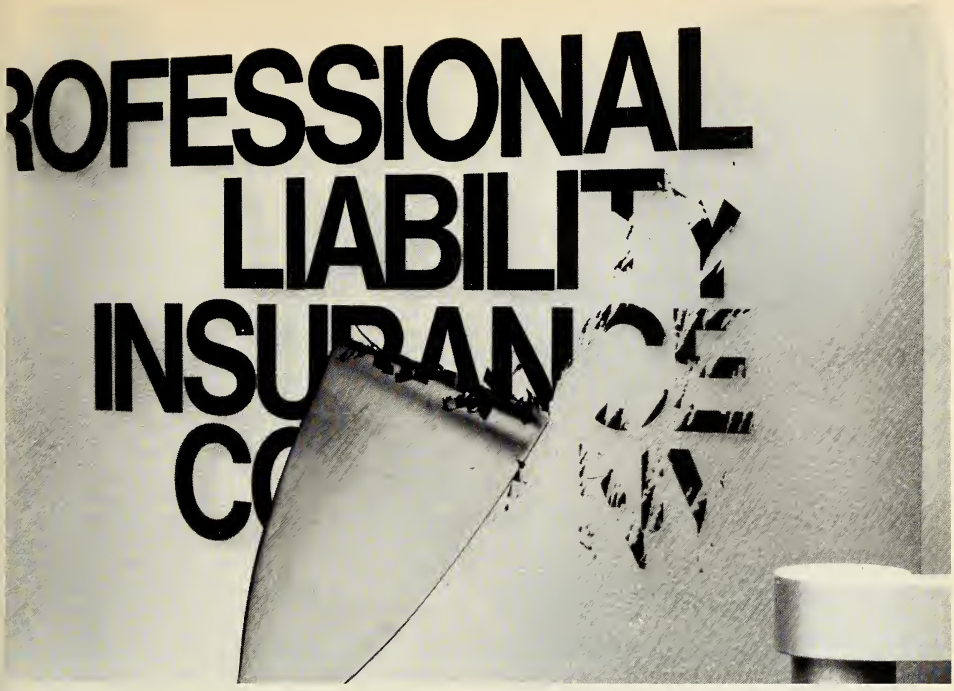
(Continued from page 19)

largely over. Training to help people and learning the intricacies of the human body are my primary joys. The education process is made more enjoyable by interesting and dedicated classmates.

An M.D. allows for versatility. If I ever stop seeing patients, the opportunity to educate, conduct research and hold administrative positions is appealing. I'm confident the closer I get to my degree, I made the right career choice.

How did your summer internship at the Iowa Medical Society affect your perception of organized medicine?

Part of my summer was spent working with Iowa Physicians Mutual Insurance Trust, the Iowa Medical Society's professional liability insurer. This physician-run company carefully screens applicants and offers statewide risk management seminars. I agree with the theory these measures may keep premiums at a competitive level. It was particularly inspiring to meet physicians who take time to discuss Iowa's medical future.



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Giant Myometrial Cyst: Report of a Case

SHIONG S. LEE, M.D.
ALFRED J. HERLITZKA, M.D.
Mason City, Iowa

A patient with an unusual huge myometrial cyst (12.5 lbs.) is reported. This intra-abdominal mass simulated an ovarian tumor or pregnancy preoperatively. The definite diagnosis of a myometrial cyst secondary to cystic degeneration of a subserosal pedunculated leiomyoma was established after histo-pathology study. The differential diagnosis of myometrial cyst on the histologic basis is also discussed.

PREOPERATIVE DIAGNOSIS of a large abdominal mass, especially in women, is often a diagnostic dilemma even with sophisticated armamentarium. We report a case of an unusual uterine cyst weighing 12.5 lbs. (4662 gms) in a 50-year-old Caucasian woman. There are only a few articles in the literature on cysts of the uterus.[1-6] None were noted in the English literature during the past 5 years.

Case Report

A 50-year-old Caucasian woman, gravida II, para II, was admitted to the North Iowa Medical Center with intermittent cramping pain in the left lower quadrant of her abdomen. The pain had increased in severity during the previous 4 months. She had regular periods until cessation 1 month prior to admission. She denied dysmenorrhea or vaginal spotting. She assumed her increasing abdominal girth stemmed from overeating as she felt well. She had no change of bowel habit or urinary symptoms. Three days prior to admission she went to her family physician complaining of lower abdominal pain. He detected a nontender, firm, smooth, symmetrical mass equivalent to an 8-month pregnancy. No fetal heart tones were heard. Her body weight was 180 lbs., BP 132/90 mmHg; other vital signs were normal. There were varicose veins in both lower extremities. Pelvic examination revealed a mass arising out of the pelvis, but the uterus was normal in size. A physical examination 2 years before revealed no abdominal mass.

A preoperative work-up revealed a normal hemogram, chemistry panel and urinalysis. A urine pregnancy test was negative. Chest X-ray was normal. An intravenous pyelogram suggested a slight distention of the upper collecting system and displacement of the urinary bladder secondary to a large noncalcified pelvic mass suspicious of a huge ovarian cyst. Papanicolaou's smear of the cervix was normal. Preoperative diagnosis was a pelvic cystic tumor, probably malignant.

The patient's sister expired from a carcinoma of the uterus; another sister had a hysterectomy for a 9 lb. uterine tumor and removal of both breasts. Another sister had a polypectomy from her uterus. A fourth sister had a hysterectomy for an ovarian lesion, bi-

Dr. Lee is a pathologist and Dr. Herlitzka is a surgeon. Both physicians are associated with the North Iowa Medical Center and St. Joseph Hospital in Mason City.

lateral mastectomies and a previous bowel resection.

In surgery a xyphoid to pubis midline incision was made. No ascitic fluid was present. There were numerous adhesions of the greater omentum to the mass with dilated omental veins over the surface of the mass. The lesion arose from the pelvis and extended into the epigastrium, pushing the intestines laterally and superiorly. The tumor was attached by a pedicle to the anterior aspect of uterine fundus. Tubes and ovaries were normal. A total hysterectomy and bilateral salpingo-oophorectomy were performed. Postoperatively, the patient had no complications and was discharged on the fifth postoperative day.

Grossly, the resected tumor mass measured 26 x 20 x 11.5 cm. and was well encapsulated. On sections of the tumor, multilocular cystic compartments were noted (Figure 1). The cystic spaces were filled with clear, amber colored fluid; one contained blood clots. There were no lining epithelia on the inner surface of any cystic compartment. The wall of the cyst and solid portions among the cysts were composed of interlacing strands and bundles of smooth muscle cells with scattered areas of fibrosis, hyalinization, myxoid degeneration and liquefaction defined by ragged boundaries in random distribution (Figure 2). No ectopic endometrial tissue was found in the tumor. There was an apparent connection of smooth muscle bundles between the cystic tumor and the fundus of the uterus via the pedicle. A Masson's trichrome stain exhibited the cellular portion of the cystic tumor to be muscle in origin. An Alcian-Blue-PAS stain demonstrated poolings of acid mucopolysaccharide in the areas of myxoid degeneration. The sections of the uterus revealed multiple ordinary leiomyomas ranging from 0.5 to 5 cm. There were no endometrial polyps or adenomyosis. The bilateral ovaries and fallopian tubes were otherwise unremarkable.



Figure 1. Cross section of the huge multilocular cyst removed from fundus of the uterus.

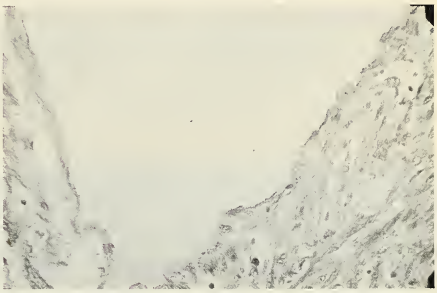


Figure 2. Cystic space defined by smooth muscle bundles and without lining epithelium. Note liquefaction inside the cyst as well as portion of the cystic wall. (H & E stain x 200)

Discussion

Most huge intra-abdominal cystic tumors in women are ovarian rather than uterine in origin. A cystic mass over 12 lbs. derived from the myometrium, as shown in our patient, is uncommon. Discovery of a myometrial cyst raises a number of differential diagnoses. The absence of lining epithelia on the surfaces of the cystic compartments in the tumor mass rules out the congenital cyst derived either from Müllerian or Mesonephric origin.[6] Lack of communication between the uterine cavity and the cystic mass rules out uterine duplication or hydrocolpos.[7] Lack of ectodermal and or endodermal elements nullifies benign cystic teratoma.[8] Absence of endometrial stroma or glands in the cystic mass invalidates endometrial cysts. The only likelihood is a leiomyoma undergoing cystic degeneration as a sequel of continuing liquefaction resulting in a large multilocular cystic mass.

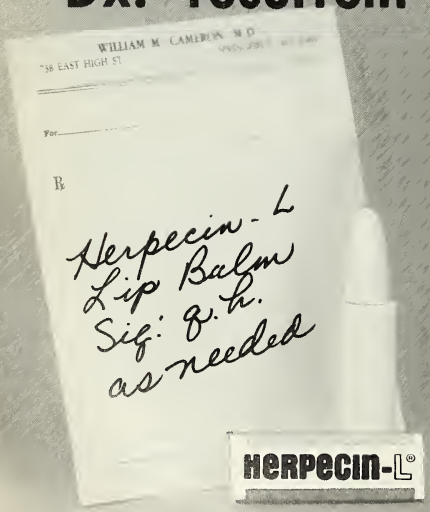
The histochemical proof of muscle origin in the solid portion of the cystic mass, the connection of smooth muscle bundles between tu-

mor and the uterine fundus and the co-existence of multiple small leiomyomas in the uterus are in agreement this huge cystic tumor is derived from cystic degeneration of a large subserosal pedunculated leiomyoma. Furthermore, it is conceivable the main avenue of blood supply to this huge tumor was the attached pedicle to the uterine fundus. Any minor torsion of the pedicle would impede the circulation or nutritional supply and could facilitate a degenerative process of the tumor. It is interesting to note the large intra-abdominal cystic mass could easily simulate a pregnancy. Similar experience has been previously noted.[9] Surgical resection of the tumor with or without hysterectomy is the treatment of choice. The patient should have an excellent prognosis.

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ALTERNATE DELIVERY SYSTEMS IN IOWA: A STATUS REPORT

The Iowa Medical Society has long supported a pluralistic approach to the delivery of health care. Experimentation with various delivery approaches has been recognized and accepted for the potential value it may provide for patients, purchasers and providers. It continues to be a basic tenet of the medical profession that no single pattern of health care delivery is necessarily suited to all patients or to all physicians.

There is a changing medical climate in Iowa which is impacting on the traditional fee-for-service mode of practice. Various alternate delivery systems are now in place in the form of HMO's, IPA's, and PPO's. In order to assist physicians in keeping up-to-date on the activities of these plans, the Iowa Medical Society House of Delegates directed the Committee on Alternate Delivery Systems to gather information on operational and proposed alternate delivery plans and to disseminate this material in a format which would list the important organizational characteristics. To this end, the Committee has developed the accompanying chart.

The Committee has prepared a definition of terms which may be helpful in understanding the alternate delivery systems arena.

GLOSSARY

Health Maintenance Organization (HMO) — A prepaid, managed hospital and medical plan with a defined membership providing comprehensive health services. HMO's stress preventive health care, patient education and normally experience lower inpatient utilization than traditional insurance plans. There are three basic types of HMO's: Independent Practice Associations (IPA's), closed panels and staff models.

Independent (or Individual) Practice Association (IPA) — A form of health maintenance organization (HMO) whereby physicians practice in their own offices rather than in a group setting. Physicians participating in the IPA are paid on either a capitation or fee-for-service basis for member patients. Participating physicians may see private-pay patients as well as IPA members.

Staff-Model HMO — Within this type of health maintenance organization, physicians are usually salaried and located in specified HMO offices and see only HMO patients.

Closed-Panel HMO — A health maintenance organization which contracts with a limited number of physician members who treat members of that HMO exclusively.

Preferred Provider Organization (PPO) — Under a PPO, hospitals and physicians agree to offer services at a discount to an enrolled group(s) or member(s). If the group's employees go to other hospitals and physicians, payment is made at a different rate of charges or fees.

Enrollee — The individual patient to whom services are provided.

Subscriber — An employer group or an individual who has enrolled independently in the plan.

(Continued on back page)

Name of Plan	Type	Federally Qualified	# of Enrollees	Areas of Operation	Method of Reimbursement		Number of Physicians
					M.D.	Hospital	
Mid-Iowa Medical Associates	PPO	N/A	13,000	Primarily Des Moines metro area	Fee-for-service	DRG's per diem discount	277
HMO Iowa	HMO/IPA	No	2,500	Licensed in 35 counties*	Fee-for-service	Per diem discount	220
Total Health Network of Iowa	HMO-Modified gatekeeper	No, but CMP	16,250	Licensed in 34 counties*	Capitation, negotiated fee-for-service	Contract	464
Medical Associates Clinic Health Plan	HMO	Yes	26,600	6-county area in Iowa	Fee-for-service	Per diem, charges	250
SHARE Health Plan of Iowa	HMO/IPA, gatekeeper	Yes	31,000	Polk, Warren counties	Capitation, negotiated fee-for-service	Per diem	317
Quad City Health Plan	HMO/IPA	No	53,100	13 counties in Iowa	Negotiated fee-for-service	DRG's, per diem, capitation	793
Cedar Valley Health Plan	HMO/IPA	No	31,000	9-county area	Fee-for-service	DRG's per diem	280
Heritage National Health Plan	HMO/IPA	No	12,000	30 counties	Negotiated fee-for-service	DRG's per diem capitation	1,212
Heritage National Health Plan	Des Moines IPA	No	0	Des Moines metro area	Fee-for-service	DRG's or per diem	200
Eastern Iowa Health Care	IPA	No	20,000	6 counties	Negotiated fee-for-service	Billed charges/ negotiated contract	175
University Health Care Plan of Iowa	HMO/IPA	No	15,000	Polk, Warren, Dallas counties	Negotiated fee-for-service	Per diem	80
Alliance Select	PPO	N/A	0	Polk, Warren counties as of 1/1/87	Negotiated fee-for-service	Per diem	237
Des Moines Health Plan	HMO, gatekeeper	No	0	License pending	Negotiated fee-for-service	Per diem, discount	60
Health Accord Incorporated	HMO/IPA gatekeeper	No	0	License pending	Capitation fee-for-service	Not established	93
Sioux City Area Physicians	HMO/IPA gatekeeper			IN DEVELOPMENT PROCESS			
Family Health Plan	HMO	No	12,000	13 counties, have expansion plans	Negotiated fee-for-service	Per diem, charges, discount	450

*Additional details available from IMS headquarters.

Number of Hospitals	% of Withhold	Medicare Risk Contract	Medicaid Risk Contract	Pre-Adm. Cert. Required	Utilization Review	Plan Ownership	Address
1	No	No	No	Yes	Nurse Screening, Physician Review Committee	Physicians	1215 Pleasant, Suite 402 Des Moines, Iowa 50309
9	20%	Seeking supplement	No	Yes	Nurse Screening, Physician Review Committee	Joint Ownership*	Jack Davis 1002 1st Interstate Bank Building Des Moines, Iowa 50309
19	10-20%	No	No	Yes	Nurse Screening, Physician Review Committee	Affiliate of BC/BS	P.O. Box 7270 Des Moines, Iowa 50309
25	15%	No	No	No	Nurse Screening, Physician Review Committee	Medical Associates Clinic, P.C.	Robert T. Melgaard, M.D. One Cycare Plaza, Suite 230 Dubuque, Iowa 52001
7	0	Yes	No	Yes	Nurse Screening, Physician Review Committee	SHARE Development Corporation	Marc Dahlquist 2700 Westown Parkway, Suite 200 West Des Moines, Iowa 50265
12	10%	Yes	No	No	Nurse Screening, Physician Review Committee		Lloyd Mathwick 11 Corporate East, 1910 E. Kimberly Rd. Davenport, Iowa 52807
9	10%	No	No	No	Nurse Screening, Physician Review Committee		Bill Zora 2705 University Ave. Waterloo, Iowa 50701
31	10%	No	Scott County	No	Nurse Screening, Physician Review Committee	John Deere	Lloyd Mathwick 11 Corporate East, 1910 E. Kimberly Rd. Davenport, Iowa 52807
All D.M. hospitals	10%	No	No	Yes	Nurse Screening, Physician Review Committee		Lloyd Mathwick 11 Corporate East, 1910 E. Kimberly Rd. Davenport, Iowa 52807
2	Varies	No	No	Varies	IFMC, Nurse Screening, Physician Review Committee	Physicians	Dan Langfield 1500 2nd Ave., S.E. #206 Cedar Rapids, Iowa 52403
6	20%	No	No	Yes	Nurse Screening, Physician Review Committee		Phil Pitzen 3440 Grand Ave. Des Moines, Iowa 50312
5	0	No	No	Yes	Nurse Screening, Physician Review Committee	BC/BS	636 Grand Ave. Des Moines, Iowa 50309
3-4	15%	No	No	Yes	Nurse Screening, Physician Review Committee	Fairview Corporation	1501 West 42nd St., Suite 380 West Des Moines, Iowa 50265
2	20%	No	No	Yes	Nurse Screening, Physician Review Committee	Physicians, hospitals	1023 2nd S.W. Mason City, Iowa 50401
							Dan Ramsey 610 Badgerow Building Sioux City, Iowa 51101
16	15%	No	No	Yes	Nurse Screening, Physician Review Committee	Joint Ownership*	Joe Wilkinson 2900 Westown Parkway, Suite D West Des Moines, Iowa 50265

Data received as of 11/1/86.

Capitation — A per-person allowance, particularly related to physician payment within health maintenance organizations. A physician or hospital receives a specific dollar amount per member per year, from which the provider must render all care.

Community Rating — A method of determining health care coverage premiums for certain subscribers. It is based on the utilization data generated by the class of subscribers as a whole, rather than the experience of the particular subscriber or group.

Competitive Medical Plan (CMP) — The CMP is a new entity created by the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982 which, in addition to federally-qualified HMO's, is allowed to enter into contracts with HCFA to provide Medicare-covered services to Medicare beneficiaries on a risk basis. A CMP must meet certain qualifying conditions to be deemed eligible before it can be awarded a contract from HCFA. These conditions are similar to federal HMO qualification requirements but the requirements are fewer and less restrictive.

Copayment — This amount, sometimes referred to as "coinsurance," indicates the percentage of liability the subscriber accepts under the terms of the contract, i.e. 80% Plan liability — 20% subscriber liability.

Deductible — An amount payable by the subscriber or beneficiary and determined by the terms of the contract, which must be paid out-of-pocket before payments are made by the plan during a specified benefit period.

Experience Rating — A means for determining subscriber dues based partially or completely on the previous and projected usage of benefits by a particular group or category of business. (Also referred to as prospective rating.)

Federally-Qualified HMO — A federally-qualified HMO is one that has met the requirements of the federal HMO Act. The requirements concern basic and supplemental health care benefits, fiscal soundness, marketing practices, management, membership representation on the HMO board of directors, rating methodology, quality assurance and grievance processes for members.

Gatekeeper — A concept under which participating primary care physicians are responsible for managing the total care of their patients including necessary referrals for specialty care.

Hold Harmless — A contractual clause designed to relieve the plan of liability for negligent actions of the participating physicians and to relieve participating physicians of liability for negligent actions of the plan.

Pre-Admission Certification — A process by which approval must be obtained prior to an admission to the hospital for treatment. Becoming popular within large employee groups as a cost-containment tool, such approval is required before hospitalization or else full benefits will not be paid.

Primary Care Physicians — Usually includes the medical specialties of Internal Medicine, Family Practice, General Practice and Pediatrics. May include Obstetrics and Gynecology or other specialties if contractually arranged.

Risk Pool — An amount or percentage of money withheld from provider payments under an HMO or prepaid health plan which serves as a financial incentive for cost containment. If care is provided to members at a cost less than premiums, the money in the risk pool is distributed among the HMO providers.

Specialty Care Physicians — Usually includes all medical specialties not referred to as primary care physicians. Some specialties serve both as a primary care physician and a specialty physician.

Utilization Review — A system of monitoring medical services to assure continuing high quality patient care. It may be inpatient or outpatient.

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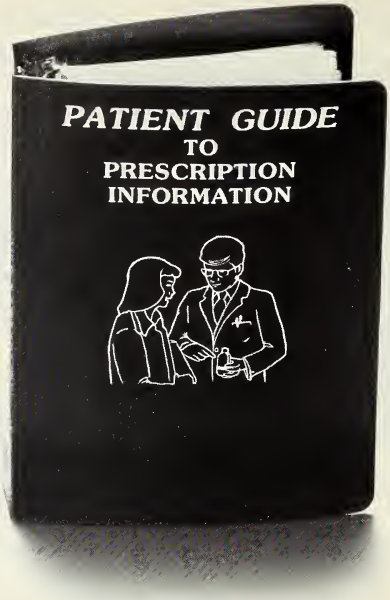
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PEOPLES DRUG

Marion E. Alberts, M.D.

COMMENTING EDITORIALLY



DEDICATION VS. COMMITMENT

As we begin a new year with IOWA MEDICINE, we wish to reiterate this publication is for Iowa physicians. IOWA MEDICINE is the voice of the Iowa Medical Society. The Iowa Medical Society is Iowa physicians dedicated to serving patients. We do not wish to cause confusion about dedication vs. commitment; at least not in the way of the Kamikaze pilot of World War II who returned safely after 3 missions. He was dedicated to his mission, but obviously not totally committed.

The staff of IOWA MEDICINE is dedicated to providing an excellent publication for our readers. That dedication is exemplified by our successes of the past. We now commit ourselves to continue in this effort, always striving to do better when we can, providing the physicians of Iowa a voice in medicine, and justifying our efforts by our actions. As I will soon enter my 17th year as Scientific Editor, I must likewise rededicate myself to this task. It is a gratifying venture for me and I sincerely hope I have been a credit to the publication and our Society. Best wishes to our readers for a very happy, healthy New Year. — M.E.A.

HIPPOCRATES AND THE FUTURE

Hippocrates (460-357 BC) undoubtedly would be amazed if he could see the advances made in medicine since his day. The Father of Medicine had a sharp mind which made him the greatest physician of antiquity; some would say of all time. He and other great giants of creativity — Socrates, Plato, Xenophon — were a credit to Greek culture of that time.

It is written Hippocrates had only scant knowledge of anatomy and most of his physiological concepts were faulty. Yet, he defined the complex relationship between physician and patient as one that goes far beyond science. He maintained the patient and his diseases were inseparable considerations. His philosophy of medicine was integrated with humanitarianism. His ceaseless observations and careful deductions demonstrated his astute common sense. This can be exemplified in his healthy cynicism of the medicine-taking habits of some patients. "Keep a watch also on the faults of the patients, which often make them lie about the taking of things prescribed. For through not taking disagreeable drinks, purgative or other, they sometimes die. What they have done never results in a confession, but the blame is thrown on the physician."

The cover of this issue of IOWQ MEDICINE is symbolic of the future, measured from any time, be it the days of Hippocrates or the twentieth century. The future has been an object of intrigue and mystery for all time. Ancient philosophers pondered upon the future, some venturing predictions of immense proportions, e.g., Nostradamus, the French prophet and astrologist of the 16th century. Expressions of concern were mixed with avoidance of speculations. Latin poet Horace (65-8 BC)

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HIPPOCRATES AND THE FUTURE

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said the present was of the essence and one should not inquire of the future. Centuries before, Greek orator Demosthenes (385-322 BC), declared "No man can tell what the future may bring." Albert Einstein (1879-1955) stated, "I never think of the future. It comes soon enough."

Truly, the future does come soon enough. That fact is particularly true in medicine for we are on a fleeting trail of advancement in knowledge pertaining to treatment of disease. As we deal with the present, we already face the future. Each day we emerge from the past into the future.

We attempt to deal with the future in this issue of IOWA MEDICINE. No dire or fantastic predictions are advanced. Some speculation is alluded to in reviews of recent advances and how they may affect the future. However it be in the future, we must remain true to our mission to provide for our patients in the way the Oath of Hippocrates admonishes us. One of Hippocrates tenets from ancient Greek philosophy was a doctor cannot deal only with a given localized disease, but must understand the sick person and his environment. That is the climate of medical practice we must maintain now and in the future. The patient is the recipient of our skills and compassion; we, in turn, derive the satisfactory reward promised in the last sentence of the Oath of Hippocrates: "While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of the art; respected by all men in all times; but, should I trespass and violate this oath, may the reverse be my lot." — M.E.A.

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Richard M. Caplan, M.D.

OUR MAN IN EDUCATION



WHAT'S IT ALL FOR, ANYWAY?

JUST BEFORE the every-6-year interview that led to the CME re-accreditation of the University of Iowa College of Medicine, I spoke at a program of a national meeting, offering reflections about various aspects of CME. The timing proved a useful coincidence, because speaking, and especially writing, oblige one to do some truly active, careful thinking and rethinking. And there's nothing more useful to prepare for the ordeal of being (re-) accredited than to think hard about one's purposes, methods, and results.

I talked at that meeting of many things — not sealing wax, cabbages or kings, however — and 2 of those issues I'd like to repeat here. First, one of the oddities in the CME circles where I spend part of my professional life is the assertion that CME doesn't make any difference, or the slightly more sophisticiated assertion that it hasn't been *proven* (as *scientists prove* things) that CME makes any difference. Any nay-sayers simply need to raise their gaze to the world of medical practice all around them. What is needed in CME research is no longer to prove that any single event of CME makes a difference, but to help foster multiple means to make programs more effective and more efficient. Computer technology will be a help with that, but not by the day after tomorrow, so to speak, as some of its proponents fantasize. The changing economic scene in health delivery and the increase in group practices may become very potent forces for *tracking* the process and outcome of care — and to an extent that individual practitioners are highly unlikely to do. That kind of effort can do a far better job of diagnosing educational needs. The peer review effort and the cost-to-outcome ratio will increasingly guide our therapeutic and our educational choices, for after all, isn't CME only a means to an end — a means to better patient care?

Dr. Caplan is Associate Dean for Continuing Medical Education at The University of Iowa College of Medicine.

"What is needed in CME research is no longer to prove that any single event of CME makes a difference, but to help foster multiple means to make programs more effective and more efficient."

Second, my answer to that rhetorical question I just asked is *no*, CME isn't *only* a means to better patient care; it is also a vital component in maintaining medicine as a learned profession, prompting its practitioners to be inquisitive seekers after knowledge, strivers for excellence, and persons whose intellectual thirst requires the slaking that only CME, in its broadest sense, can provide. I, for one, decry the totally utilitarian or trade-school approach that would make CME *no more* than a problem-solving effort aimed at the patient of the moment who faces us in the clinic. Good CME will not ignore that, but it will also fill us with intellectual excitement, prod us with professional stimulation, stretch our horizons and refurbish our minds — maybe even our hearts and souls. Without all that, physicians as a profession will be reduced to a cadre of body mechanics, and as a true profession, lost forever, and deservedly so.

The re-accreditation effort, by the way, was successful.

University of Iowa Hospitals & Clinics

DRUG THERAPY REVIEW



Reynold Spector, M.D., Editor

RECOMBINANT ALPHA INTERFERONS 1986: A REVIEW

Interferon (IFN) was first described in 1957 by Isaacs and Lindenmann as a result of a study of viral interference. Subsequently, anticellular and immunomodulating activities in addition to the antiviral activity of this substance have been delineated, including inhibition of DNA and protein synthesis, slowing of cellular multiplication, increase in the rate of synthesis of human leukocyte antigens, maturation of natural killer cells from stem cell precursors, and stimulation of the phagocytic activity of macrophages. The three major antigenic classes of IFN proteins, now designated alpha (IFN-α), beta (IFN-β), and gamma (IFN-γ), are derived from leukocytes, fibroblasts, and T-lymphocytes, respectively. Alpha interferons, the most common and best studied, are named by World Health Organizatin nomenclature, IFN alfa-2a (formerly IFN alpha-A), IFN alfa-2b (formerly IFN alpha-2), alfa-2c (formerly IFN alpha-2arg), and IFN alfa-N1 (formerly IFN alpha-[Ly]). Alfa is the general chemical name assigned to the alpha IFN subspecies. In early 1981, nucleic acid sequences for human IFN-α and IFN-β genes were discovered. When human IFN-α was cloned, a number of related genes were observed, and IFN-α has now been shown to be a mixture of at least 14 proteins. The most recent method for producing IFN is by expression of the appropriate gene in bacteria using recombinant DNA techniques, and these recombinant IFNs are sometimes referred to as rIFN. This has allowed industrial scale production of two highly purified proteins marketed in the U.S., one by Schering Corporation (IFN alfa-2b, Intron® A) and the other by Roche Laboratories (IFN alfa-2a, Roferon®-A). This review focuses on these recombinant IFNs that differ in only 1 of their approximately 165 amino acids and have a molecular weight of about 19 kD. A natural IFN made by Burroughs Wellcome Co. (IFN alfa-N1, Wellferon®) is undergoing clinical trial at The University of Iowa and elsewhere, but is not yet available for general use. It differs from the rIFNs since natural IFN contains a spectrum of different IFNs. IFN alfa-2c, a recombinant product produced by Boehringer Ingelheim Ltd., is not available in the U.S. at this time.

Mechanism of Action and Pharmacology

The mechanism by which IFN has an antitumor effect has not been defined. IFNs are biological response modifiers with all the potential effects previously mentioned. They also have a direct cytotoxic effect on cells in tissue culture and have been shown in vivo to inhibit the growth of several human tumors growing in immunocompromised (nude) mice. Therefore, both direct antiproliferative action against tumor cells and modulation of host immune responses may be involved.

IFN alfa-2a has been shown to have a rapid distribution after intravenous administration

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with a terminal half-life of 5.1 hours, volume of distribution of 0.4 L/kg, and total body clearance of 2.79 ml/min/kg. IFN is usually given by subcutaneous (sc) or intramuscular (im) injection since it is well absorbed (>80% bioavailability); levels are sustained for 8 to 12 hours and low concentrations persist even at 24 hours. After sc or im injection, mean times to peak serum concentrations are about 4 to 7 hours. Elimination half-lives for IFN are variable, but in several studies were about 6 to 8 hours after sc or im injection.

Alpha IFNs are filtered through the glomeruli and rapidly degraded in the kidney with minimal reabsorption; however, chronic renal failure and hemodialysis did not affect IFN clearance in one report. Liver metabolism is a minor pathway of elimination. IFN at usual doses does not readily penetrate into the cerebrospinal fluid. Serum IgG neutralizing antibodies developed in 3 to 27% of treated patients in 2 large studies, but the significance of this is not known. Their presence is known not to have abrogated response in at least some patients and to have decreased side effects in others.

Toxicity

Fever and a flu-like syndrome are almost universal and can be dose limiting. When used in the treatment of hairy cell leukemia, rIFN was associated with fever (98%), fatigue (89%), myalgias (73%), headache (71%), anorexia (46%), nausea (32%) diarrhea (29%), and dizziness (21%). These symptoms may ameliorate after the first week or so of therapy. Other side effects ocurring in 10 to 20% of patients include rash, change in taste, emesis, dryness or inflammation of oropharynx, dry skin, pruritus, and weight loss. Less common problems (<10%) included diaphoresis (8%), paresthesias (6%), numbness (6%), partial alopecia (8%), reactivation of herpes labialis (8%), arthralgias (5%), transient impotence (6%), and impaired spermatogenesis. Central nervous system effects including mental status change, depression, visual disturbances, loss of concentration, sleep disturbances, and nervousness occur in some patients. Cardiovascular difficulties, such as hypertension, chest pain, arrhythmias, and palpitations, occur in only a small number of patients and have not been confirmed in some large series. There have been a few cases of reversible renal failure reported. Hematologic abnormalities are usually mild to moderate, rapidly reversible, and noncumulative. In a series of patients with hairy cell leukemia, leukopenia (59%), neutropenia (39%), thrombocytopenia (42%), and anemia (36%) occurred. Also reported are abnormalities of serum transaminases (47%), alkaline phosphatase (18%), lactic dehydrogenase (12%), proteinuria (10%), hypocalcemia (10%), and hyperglycemia (33%). IFN is not a vesicant and reactions at the injection site are unusual. The safe use of IFN in pregnancy has not been established, and it is not known if the drug is secreted in human breast milk.

Efficacy

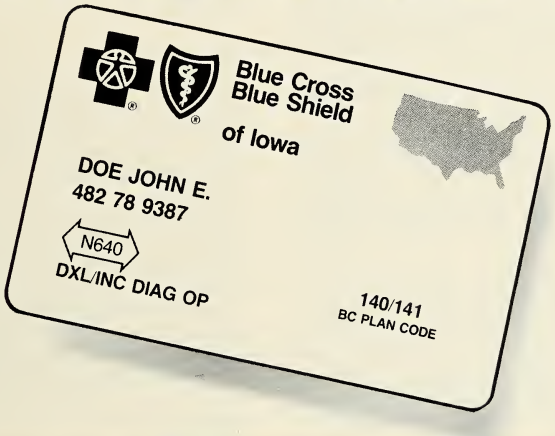
Hairy Cell Leukemia

In 75 evaluable patients who received IFN alfa-2a, 46 (61%) achieved a partial or complete response. Twenty-one patients (28%) had a minor response, 8 (11%) remained stable, and none had worsening of disease. In that study, responses were defined as complete or partial normalization of hemoglobin, neutrophil, monocyte, and platelet counts and a decrease in peripheral and bone marrow hairy cells. Responding patients had a markedly decreased transfusion requirement as well as statistically increased 2 year survival compared to historical controls. There was a 70% partial and 4% complete response rate in 145 patients who received IFN alfa-2b in another series. Similar results have been reported for IFN alfa-N1. Most of the responses in all series are partial since less than 20% of patients had elimination of hairy cells from their marrows.

Previously, the most effective treatment for this disease was splenectomy, following which at least one-third of patients subsequently deteriorated. Leukapheresis and cytotoxic chemotherapy are generally only of marginal benefit. Some patients who are refractory to IFN-α respond to IFN-γ, which still remains experimental. Therefore, the use of IFN rep-

(Please turn to page 36)

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(Continued from page 34)

resents a major advance in the treatment of this disease. The optimal doses are yet to be defined.

Low and Intermediate Grade Non-Hodgkin's Lymphoma and Cutaneous T-Cell Lymphoma

A 54% response rate was observed in low-grade lymphomas, 33% in intermediate grade, and 14% in high-grade lymphomas in 1 study in which IFN was given 3 times a week. Median duration of response was 8 months. Two other studies of low-grade lymphoma reported response rates of 35% and 43% when the drug was given daily or 3 times a week. Cutaneous T-cell lymphoma (mycosis fungoides or Sezary syndrome) has also been studied, and 45% of 20 patients with advanced disease had a response with a median duration of 5 months. IFN has definite activity in these diseases.

Other Probably Responsive Diseases

The evidence at this time indicates that IFN has probable activity in several other diseases. In multiple myeloma, responses have varied from approximately 15 to 20% in previously treated patients to 50% in untreated patients. Further studies are needed to determine whether IFN should have a role in the early treatment of this disease. In chronic myelocytic leukemia (stable phase), the drug was reported to give 14 responses in 17 patients, many of whom were previously treated with hydroxyurea or busulfan. Six of these patients had at least transient disappearance of the Philadelphia chromosome. When given to patients with melanoma, responses were often 20% or less but were as high as 33% for good risk patients. This is an encouraging finding in view of the relative dearth of agents with activity in this disease. A 38% response rate was found for 20 patients with Kaposi's sarcoma associated with acquired immunodeficiency syndrome using high doses of IFN. In metastatic renal cell carcinoma, response rates have been less than 20% in the larger series.

Other Diseases Requiring Further Study or Not Responding to IFN

IFN for ovarian cancer (intraperitoneal), chronic lymphocytic leukemia, acute lymphoblastic leukemia, Hodgkin's disease, superficial bladder cancer (intravesicular), sarcomas, breast cancer, and brain tumors will require further study to determine efficacy of IFN. Evidence to date indicates that colorectal, lung, and prostate cancer and acute nonlymphoblastic leukemia do not respond to therapy with IFN.

Conclusions and Recommendations

IFN-α is now approved for use in patients with hairy cell leukemia over the age of 18 years. It will be the treatment of choice for many of these patients who have either progressed after, or are not candidates for splenectomy. It is not known whether IFN or splenectomy is the primary treatment of choice, but clinical trials are under way to examine this question. It is likely that it will find a place in the standard therapy of other forms of cancer either alone or in combination with other drugs or other modalities. — DEBORAH L. LINDQUIST, M.D., *and* C. PATRICK BURNS, M.D., *Department of Internal Medicine.*

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Information of Interest

STATE DEPT. OF PUBLIC HEALTH

IOWA: THE VICTIM STATE

WHY ARE IOWANS easily seduced by miracle diets, arthritis "cures" and immune system formulas? What do your patients find so attractive about ineffective, unproven therapies?

Iowa has a reputation as a victim state with the U.S. Postal Inspector because entrepreneurs in many states such as California, Florida and Texas fabricate bogus medicine in a pill, powder, or potion and sell it to Iowans. Iowans are a good market for fish oil, pond scum, and mega vitamins. Iowans buy catalyzed water and potentized machines. If you practice in Iowa, you probably have patients visiting chelation clinics for their heart disease, diet clinics for their cellulite, and manipulation clinics for their arthritis.

You, the physician, are the best defense against health fraud. You have an ongoing, long-term relationship with people, their families, and the community. But how do you correct your patients misconceptions when you don't even know they have been conned?

In order to help your patients cope with everything from the food faddist in the work place to the quack clinician in their community, consider doing the following:

(1) Open new lines of communication.

Display your openness and caring, as highlighted in the November 1986 issue of IOWA MEDICINE.

Build a good relationship before mentioning this uncomfortable issue.

Your patient must know he or she won't be scolded for mentioning that he or she takes grapefruit pills instead of exercising.

Imagine this conversation.
Physician "Are you taking other medicines, food supplements or vitamins?"
Patient "Just marine lipids (fish oil) and vitamins."
Physician "Do you happen to have the bottles with you. I'd like to see them."
Patient "No."
Physician "How about bringing them with you next time you come in? I'm interested in everything you're doing for your health."

When the conversation is continued during a subsequent visit, the patient may reveal taking a number of supplements and remedies including pseudovitamins like B_{10}, B_{11}, B_{13}, B_{15}, and B_{17} (laetrile), herbs like devils claw or coltsfoot or homeopathic medications like dessicated brain. Many patients will classify all as vitamins. In 1976, Congress passed an amendment to the Food Drug and Cosmetic Act which restricts FDA's authority to establish standards of identity for dietary supplements. As a result, such products may include ingredients of no recognized nutritional value, and/or irrational combinations of ingredients.

Now, let's imagine a conversation with a patient taking dessicated brain and lobelia.

(2) Focus on description, not analysis.

Physician "How did you come to take dessicated brain and lobelia?"
Patient "I started having headaches when I cut back to 1 pack of cigarettes. My sister-in-law is an herbal nutritionist, she sold them to me to regenerate my brain cells?"

(Please turn to page 38)

This information on public matters is furnished and sponsored by the Iowa State Department of Health.

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STATE DEPARTMENT OF PUBLIC HEALTH

(Continued from page 37)

Physician "What are they doing for you?"
Patient "I still have headaches."
Physician "Do they come in pill form? injected? a liquid?"
Patient "Pills."

(3) Look for something positive to say first.

Physician "Going from 3 packs per day to 1 is a big change for you. I'm proud of your self-control. About the drugs you've bought: herbs, although 'natural,' are not always safe or effective." The dialog would continue regarding your recommendations.
Patient "What about the dessicated brain?"
Physician "Tell me, what do you know of homeopathic medications like dessicated brain?"
Patient "My sister-in-law swears by them."

As you can see, this gets harder. You can always refer the patient to this poem about homeopathy published in 1848. *Physician* "Samuel Hahnemann proposed homeopathy in the early 19th century. Today's homeopathic sales people say you take dessicated heart to help your heart, dessicated liver to help your liver. But, if they understood, or stopped ignoring digestion, they would know that those tiny amounts of liver, brain or heart in those expensive pills, once swallowed are digested and used by the body as protein, just as liver or ground beef in a meal is used. The theory is the *smaller* the dose in homeopathy, the higher the potency.

"The homeopathic system, sir
just suits me to a tittle
It proves of physic, anyhow,
you cannot take too little.
If it be good in all complaints
to take a dose so small
It sure must be better still,
to take no dose at all."

Patient "Sigh; I guess I can save my money."
Physician "You may want to reconsider purchasing medicine from a wide variety of people. As your physician, I'd like to help you evaluate your drugs and diet as part of your

clinical exam. Please let me know what you're taking or thinking of taking."

Quack remedies all around us

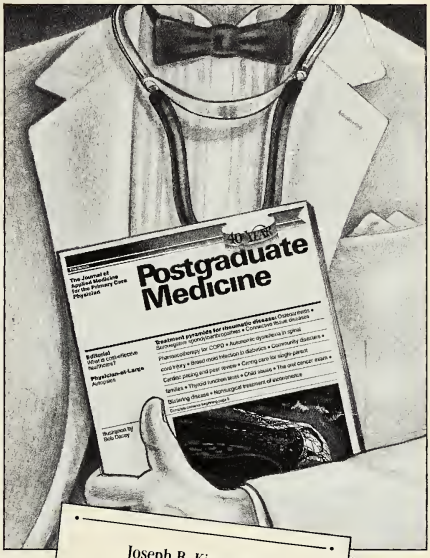
People often believe what they hear the most and Iowans hear a lot about nutrition and health misinformation. Multilevel marketing companies, sometimes called pyramid schemes, thrive in Iowa. Let a person sneeze, and the friendly nutritional supplement distributor at the next work station offers a nutritional breakthrough in a capsule that prevents colds and flu by strengthening the immune system. Often these self-styled experts then try to sell supplemental users a distributorship. Distributorships are sold with promises of buying the supplements at "wholesale" prices and the chance to get rich by selling more distributorships.

It is easy for unethical health product marketers to advertise in local newspapers, television, radio, and in magazines. Many people are prone to believe these advertising claims. Fifty million adult Americans agreed with the statement: "Advertisements about medications and health aids must be true or they wouldn't be allowed to print them." No government agency reviews ads before they are aired or published. A sampling of the weight-loss ads from Iowa newspapers for 3 months revealed at least 15 false or misleading ads for weight loss clinics or products each month. Misleading ads and a letter of complaint can be mailed to the Iowa Attorney General's Consumer Protection Division. Health fraud is a priority of Iowa's Attorney General. His office has actively pursued quackery and has obtained restitution for consumers who spent their money on unnecessary nutrition supplements and diet pills.

Questionable, unproven therapies are often patient-oriented and time-consuming. Practitioners of questionable medicine are usually pursuasive and reassuring. The victims receive much attention, treatment, and encouragement. Much good can be done with this caring approach but people can be manipulated and misled by false, unethical use of these techniques. Investigators visiting a questionable Iowa clinic received first hand knowledge of these deceptive methods. During sessions

(Please turn to page 40)

FAMOUS PHYSICIANS ARE SHOWING UP FOR OUR 40th YEAR CELEBRATION.



Read Every Issue From Cover to Cover:

January
Symposium: Biliary Tract Disease
Special Article: Gastroenterology 1947-1987 Joseph B. Kirsner, M.D.

February 1
Symposium: Focus on Family Practice Donald E. DeWitt, M.D. coordinator
Special Article: Family Practice 1947-1987 W. Jack Stelmach, M.D.

February 15
Symposium: Emergency Medicine Robert E. Rosenthal, M.D. coordinator
Special Article: Emergency Medicine 1947-1987 James D. Mills, M.D.

March
Symposium: Otolaryngology in Primary Care Thomas J. McDonald, M.D. coordinator
Special Article: Otolaryngology 1947-1987 Thomas J. McDonald, M.D.

40 YEAR
Postgraduate Medicine

Every Issue is a Celebration of Clinical Information

STATE DEPARTMENT OF PUBLIC HEALTH

(Continued from page 39)

lasting hours, the misinformation and promises are repeated over and over by several individuals including other customers who have been convinced their hundreds of dollars are not being wasted. The entire process is designed to feel sincere and genuine. Through slick use of psychological manipulation, skepticism and sales resistance are broken down.

Quackery's attractiveness

Quackery is the business of promising, miracles and hope. For example: keep your immune system in shape and you won't have to worry about AIDS. Take vitamin E so you won't age. Melt away your fat with creams, pills and rubs. Ingest amino acids for the athletic steroid effect without tell-tale urine.

Unfortunately Iowans suffering from chronic diseases like arthritis, cancer, cardiovascular disease, and obesity are most susceptible to quackery's miracle promises. Many chronic disease sufferers will pay dearly for hope. Fixed-income Iowans can be sold these false hopes to the point of lacking money for an adequate diet or proper health care. An example is the woman who called the Department of Public Health requesting information. A co-worker sold her husband an imported barley mixture and a distributorship in a multilevel company. The $165.00 barley supplement was supposed to cure arthritis. The woman was upset because her husband was taking the barley instead of having knee surgery recommended by their family physician.

Health and nutrition fraud is dangerous

Alternative practitioners have killed or injured Americans with cyanide treatments, toxic doses of Vitamin A and excessive colonic irrigations. Following Pearson & Shar's book *The Life Extension Companion*, a 22-year-old woman ingested BHT supplements and was taken to an emergency room once and subsequently hospitalized with cramping, nausea, vomiting and loss of consciousness. *The Life Extension Companion* states BHT is useful in the treatment of genital herpes. Glucomannan, an ingredient in many useless diet products, has caused esophageal obstruction in seven cases.

The National Council Against Health Fraud's newsletter, publishes up-to-date information on morbidity and mortality resulting from quackery.

What can you do?

(1) Assure your patients they are understood.

A good dialogue about symptoms and therapies makes them less vulnerable to quacks.

(2) Take a vitamin history.

This may be an indicator of acceptance of misinformation.

(3) Be alert to stress from illness.

Talk to your patients with chronic diseases about worthless and questionable therapies and products. Let them know they are sometimes the target of fraud. Ask them to bring questionable ads, articles and cures to you.

(4) Be ready for your patients to defend the indefensible.

Expect loyalty to the self-styled therapist who has given them time and attention.

Health fraud steals from us all. Health insurance rates include the cost of insurance companies paying difficult to detect, unproven, unscientific treatments and bogus lab procedures. Some of us will pay for health fraud in dollars, some will pay with their lives. State agencies and Iowa insurance carriers who are members of the National Health Care Anti-Fraud Association are giving it their time. Consider giving health fraud your attention.

In addition to contacting the state licensing boards; FDA, FTC and the postal inspector you can discuss, report or fight health fraud in Iowa by contacting: Robin Hamre, R.D., Community Nutrition Coordinator, Iowa Department of Public Health, Lucas State Office Building, 3rd Floor, Des Moines, IA 50319. 515/281-7096, Iowa Council Against Health and Nutrition Fraud, P.O. Box 1862, Ames, IA 50010, or Consumer Protection, Iowa Attorney General, Hoover State Office Building, 2nd Floor, Des Moines, IA 50319. 515/281-5926.

November 1986 Morbidity Report

Disease	Nav. 1986 Tatal	1986 ta Date	1985 ta Date	Mast Nav. Cases Reparted Fram These Counties
Aids	1	19	13	NA
Amebiasis	3	51	52	Jahnsan, Palk
Brucellasis	0	1	5	
Chickenpax	277	7070	5891	
Campylabacter	27	349	296	
Cytamegalavirus	2	19	14	Johnsan
Eatans Agent Infection	7	26	8	Linn, Marshall, Palk, Stary, Winneshiek
Encephalitis, viral	5	26	29	Dubuque, Jacksan, Pattawattamie
Erythema Infectiasum	6	268	0	Linn
Gastraenteritis (GIV)	1682	15807	14086	Scattered
Giardiasis	32	376	477	Scattered
Hepatitis, A	0	39	54	
Hepatitis, B	6	82	91	Black Hawk, Palk, Scatt, Washingtan
Hepatitis, Nan A-B	1	26	15	Des Maines
Hepatitis type unspecified	0	1	8	
Herpes Simplex	104	1201	1118	Scattered
Herpes Zaster	0	0	0	
Histaplasmasis	0	20	19	
Infectiaus mananucleasis	25	225	176	Scattered
Influenza, lab canfirmed	0	247	170	
Influenza-like illness (URI)	3654	80849	34951	Scattered
Legianellasis	1	14	13	Palk
Malaria	0	1	2	
Meningitis				
aseptic	14	57	53	Scattered
bacterial	6	83	129	Scattered
meningacaccal	0	11	9	
Mumps	21	57	17	Lyan, Siaux
Pertussis	0	19	31	
Rabies in animals	14	177	142	Scattered
Reye Syndrame	0	0	4	
Rheumatic Fever	0	6	4	
Rubella (German measles)	0	1	1	
Measles	0	134	0	
Salmanellasis	21	279	263	Scattered
Shigellasis	2	21	18	Buchanan, Linn
Taxic Shack Syndrame	0	8	8	
Tuberculasis				
tatal ill	0	46	53	
bact. pas.	0	42	49	
Typhaid Fever	0	1	3	
Venereal diseases:				
Ganarrhea	265	3603	4113	Scattered
Chlamydia	281	2514	26	Scattered
Syphilis	1	9	18	Palk

Other Nan-Repartable Diseases: Ureaplasma urealyticum — 2, Des Maines, 2, Dubuque, 11, Jahnsan, 2, Palk.

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Medical Developments

NEWS/PRODUCTS, PROGRAMS, ETC.

NEW ANTIDOTE — An antidote for countering overdoses of digoxin and digitoxin has been approved by the U.S. Food and Drug Administration for marketing by Burroughs-Wellcome Co. The new drug, Digibind® Digoxin Immune Fab (Ovine), is derived from Digoxin antibodies. It is expected to be available to hospitals in the next few months.

NEW ANTIBIOTIC — SmithKline Beckman Corporation is now marketing Tazicef®, ceftazidime. Given intramuscular or intravenous, Tazicef is a semi-synthetic, broad-spectrum, beta-lactam antibiotic indicated for treatment of infection due to a wide variety of susceptible organisms including Pseudomonas aeruginosa.

AN OUNCE OF PREVENTION — The American Institute for Cancer Research announces the availability of a cookbook of recipes that meet the Dietary Guidelines for lower cancer risk. The book, *An Ounce of Prevention*, is available for a $6 donation to American Institute for Cancer Research, AIRC Cookbook, Dept CB1 Washington, D.C. 20069.



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News About Colleagues

ABOUT IOWA PHYSICIANS

Dr. Donald Renfrew has joined Radiology Associates of Ottumwa. Dr. Renfrew received the M.D. degree; completed his internship and radiology residency at the U. of I. College of Medicine and University Hospitals. . . . **Dr. David R. Archer** has joined the McCrary-Rost Clinic in Lake City. Dr. Archer will practice in Lake City until the new medical clinic in Gowrie is completed. Dr. Archer completed his family practice residency in Milwaukee, Wisconsin. . . . **Dr. Mark Young** has joined the Creston Medical Clinic. Dr. Young received the M.D. degree at the U. of I. College of Medicine and completed his family practice residency at Broadlawns Medical Center in Des Moines. . . . **Dr. Donald B. Wender** has joined **Dr. John Michalak** in Sioux City. Dr. Wender received the M.D. degree at Ohio State University School of Medicine in Columbus, Ohio, interned and completed his internal medicine residency and medical oncology fellowship at Presbyterian University Hospital in Pittsburgh, Pennsylvania. . . . **Dr. Brian W. Nelson** has joined Iowa Lakes Orthopaedics in Spirit Lake. Dr. Nelson received the M.D. degree at the University of Minnesota School of Medicine; interned at Hennepin County Medical Center in Minneapolis and completed his orthopedic surgery residency at the University of Minnesota. Prior to locating in Spirit Lake,

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Dr. Nelson was in private practice in Espanola, New Mexico. . . . **Dr. Anthony Orecchia** recently began family practice in Grundy Center. Dr. Orecchia received the M.D. degree at the University of Minnesota School of Medicine and completed his residency in combined internal medicine and pediatrics at St. John's Hospital and Memorial Medical Center in Springfield, Illinois.

DEATHS

Dr. C. M. Updegraff, Jr., 52, Bettendorf, died October 21 at Mercy Hospital in Davenport. Dr. Updegraff received the M.D. degree at the U. of I. College of Medicine and served his anesthesiology residency at Veterans Administration Hospital in Iowa City. He was a member of the American Society of Anesthesiologists and former chairman of the Department of Anesthesiology at Mercy Hospital in Davenport.

Dr. Gerald F. Brown, 75, Anamosa, died October 22 at St. Luke's Hospital in Cedar Rapids. Dr. Brown received the M.D. degree at the University of Chicago; interned and served his obstetrics and gynecology residency in Madison, Wisconsin and Chicago, Illinois. He began medical practice in Anamosa in 1946. Dr. Brown was a diplomate of the American Board of Obstetricians and Gynecologists and former Jones County medical examiner.

Dr. Louis J. Frank, 85, longtime Sioux City physician, died November 7 at the Westwood Convalescent & Rest Home in Sioux City. Dr. Frank received the M.D. degree at the U. of I. College of Medicine and served his dermatology residency in Kansas City, Missouri. He began medical practice in Sioux City in 1932. Dr. Frank was a diplomate of the American Board of Dermatology, Fellow of the American Academy of Dermatology and past president of the Iowa Dermatological Society.

(Please turn to page 46)

The United States Army Reserve

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Dr. Stuart H. Nam, 64, Carroll, died November 4 at the Western Medical Center Hospital in Santa Ana, California. Dr. Nam received his medical education at Severence Medical College in Seoul, Korea. He came to the United States in 1956 and in 1957 began postgraduate work in pathology at St. Mary's Hospital in Waterbury, Connecticut; continuing at Colorado State Hospital in Pueblo, Colorado and finishing his pathology residency at Woman's Medical College in Philadelphia, Pennsylvania. He began his pathology practice in Carroll in 1962.

Dr. J. M. Romero, 63, Des Moines, died November 21 at Iowa Luthern Hospital. Dr. Romero received the M.D. degree at the University of Havana in Cuba; interned at Mercy Hospital Medical Center in Des Moines and served his anesthesiology residency at St. Francis Hospital in Wichita, Kansas. Dr. Romero was former president of Des Moines Anesthesiologists, P.C. and member of the American Society of Anesthesiologists.

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EMERGENCY ROOM PHYSICIAN — Immediate need for a full-time emergency physician in Sioux City, Iowa. Position involves coverage at 2 community hospitals with good medical staff support. This is an excellent job opportunity with attractive hourly compensation. ACLS/ATLS certification required. EM board certification/preparation desired. If interested, send C.V., or contact Paul Berger, M.D., FACEP, 5909 Pine View Drive, Sioux City, Iowa 51106 or call 712/276-3308.

FAMILY OR GENERAL PRACTITIONER — Position available for full or part time practitioner in free standing clinic affiliated with Mercy Health Center Emergency Room. Work as independent contractor, salary, 12-hour shifts. Contact M. Singsank, M.D., Mercy Health Center/Mercy Care, Asbury Square, Dubuque, Iowa 52001 or call 319/582-2273.

NEEDED — Board Certified Physician in Family Practice needed for position of Hospital Coordinator for a *large* Family Practice Group in Central Iowa. Salary is negotiable. Send resume to: Wiltfang-Paulson Clinic, 1129 Spencer, Grinnell, Iowa 50112.

FP/PEDS/IM — BC/BE needed for a modern intermediate care facility for mentally retarded clients at the Woodward State Hospital School located 30 miles from Des Moines. Competitive salary, good working environment, excellent fringe benefits. Send CV to S. Lerd, M.D., Woodward State Hospital School, Woodward, Iowa 50276. An Equal Opportunity/Affirmative Action Employer.

FAMILY PRACTICE and INTERNAL MEDICINE SPECIALISTS — to join seven-doctor family practice clinic in Cloquet, Minnesota, a community of 12,000 (30,000 service area) located 20 minutes from Duluth-Superior. Clinic facility is located one block from modern, well equipped 77-bed hospital. Cloquet enjoys a stable economy (forest products). Additionally, our community is noted for its excellent school system. First year salary guarantee, paid malpractice, health and disability insurance, vacation and study time. Contact John Turonie, Administrator, Raiter Clinic, Ltd., 417 Skyline Blvd., Cloquet, Minnesota 55720. Telephone 218/879-1271.

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FAMILY PRACTICE — Medical Associates Clinic, Clinton, Iowa, is recruiting a residency-trained family physician for a branch office in a community of 5,000 in Illinois. New two-physician clinic with management from main facility. Excellent fringe benefits and income. Please send curriculum vitae to Roger R. Greenwald, Administrator, Medical Associates, Springdale Drive and 13th Avenue North, Clinton, Iowa 52732.

GENERAL INTERNIST — Marshfield Clinic, one of the nation's largest multispecialty private groups, is seeking several Board certified/Board eligible General Internal Medicine specialists to join its expanding 18-member section. Internal Medicine Residency Program, University affiliation, Research Foundation, and large regional referral base contributes to a very stimulating environment. Unique big city medicine opportunity in a family oriented rural setting. Please send curriculum vitae to: John P. Folz, Director, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect 715/387-5181.

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A Monthly Commentary

IN THE PUBLIC INTEREST

Three Views of the Future

TODAY, THE MIND REELS at the changes medicine may see in the coming decades. Three Iowa physicians were asked to sharpen their powers of divination and give us a preview of the future.

Transplants: New Goals

"We've seen enormous progress in the past decade, including development of immunosuppression agents, improvement of surgical techniques, better preservation and sending methods and increased public awareness. The future will bring further refinement of our understanding of organ rejection and tolerance," says Robert J. Corry, M.D., professor and head of the University of Iowa Department of Surgery.

Dr. Corry says, "In the last 2 years University Hospitals has developed one of the world's leading pancreatic transplant programs for Type I diabetes mellitus," and he predicts the development of isolated lung as well as intestinal transplant programs within the next 5 years.

Crucial future issues will be cost of transplants and availability of donor organs.

"We're making strides with third party payors covering some transplants; but I believe due to cost only certain geographic areas will do the procedures eventually," he states. "I'm also convinced compulsory organ donation will come. At the very least, required request will become law."

'Dramatic' Reproductive Technology

"The delivery of ob/gyn care will see unprecedented changes. There will be dramatic advances in reproductive technology, embryo transfer, frozen embryos and laboratory pregnancies. The increased availability of such expertise will cause profound ethical dilemmas," comments Norman K. Rinderknecht, M.D., a Des Moines obstetrician/gynecologist.

According to Dr. Rinderknecht, specialization in gynecologic oncology, reproductive endocrinology or maternal/fetal medicine will be the wave of the future.

He also predicts continued improvement in care of gynecologic malignancies, advancement in pregnancy monitoring, fewer hysterectomies in favor of laser ablation and more C-sections due to litigation and inadequate training in breech delivery.

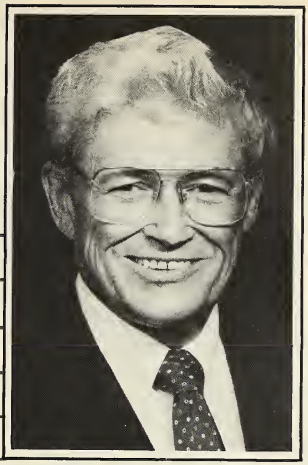
"In some ways, we're losing the art of obstetrics," he adds.

Searching For 'Practical' Applications

"There will be expansion of CT scanning, proton imaging and other forms of magnetic resonant imaging. There will be a move away from X-ray film recordings to magnetic tapes and computer manipulation. We will be able to identify the nature and extent of a disease process much sooner," relates Donald C. Young, M.D., who practices radiology and nuclear medicine in Des Moines.

Dr. Young foresees a major expansion of outpatient diagnostic facilities in non-hospital settings, an arrangement which will "avoid fixed costs that are part of a hospital situation." He also predicts development of technology which will permit remote transmission of high-resolution screen images. In other words, a specialist's opinion will be available at the touch of a button.

"Research physicians will have to work only on things that have practical applications in patient care situations. Cost will be the engine that will drive many of the future changes."



PRESIDENT'S PRIVILEGE

IPMIT TURNS A CORNER

THE START OF THE NEW YEAR saw yet another milestone in development of Iowa Physicians Mutual Insurance Trust, the Iowa Medical Society's professional liability insurer.

The Iowa Insurance Commissioner thoroughly reviewed the IPMIT program and has given it a greater level of authority to issue full limit Iowa policies. This is a major step toward the goal of providing Iowa physicians with a perpetual and stable source of liability insurance.

With approximately $3.5 million in surplus and the full support of a prominent reinsurance company, IPMIT has now become the sole issuing company for the IMS-sponsored program. This represents significant progress.

Since IPMIT was authorized by the 1984 House of Delegates, it has seen many turning points. Over 800 Iowa physicians have been accepted for insurance. IPMIT is managed and advised by insurance professionals from a prominent national firm. A top-notch staff has been acquired.

Despite discontinuance of AMACO involvement, the AMA remains a strong supporter of our program and has advanced a surplus contribution of $2.5 million to help capitalize the company. The IMS Board of Trustees has renewed its commitment to establish a successful insurance vehicle for Iowa physicians.

We have all worked together to create and sustain the company we control. Iowa physicians can be proud of this continuing effort and should participate where feasible.

L. D. Caraway, M.D.

L. Dean Caraway, M.D.
President

Four Key Elements in Personnel Management

DONALD E. RANKIN
Cedar Rapids, Iowa

Does your medical office have a personnel management system designed to recognize and retain good employees? Here, the author describes why and how physicians should get involved in management of medical office employees.

PERSONNEL MANAGEMENT is often overlooked in a medical practice. Usually, the practice has grown so rapidly the proper resources have not been allocated to personnel management. However, as employees become more sophisticated about their rights, all professionals will need to spend more time administering personnel functions.

There are many aspects to personnel management. This article focuses on 4 key elements:

- Assignment of one physician to personnel management
- Performance evaluation system
- Position descriptions
- Administrative policy manuals

The objective of any personnel management system is to hire good employees and retain them by meeting their needs and the needs of the practice.

To assist in this process, employees need to know who they report to, their responsibilities, how they will be evaluated and personnel policies.

Assignment of One Physician to Personnel Management

One of the first steps in administering a good personnel program is assigning one physician in the group the responsibility of managing personnel. This will centralize:

- Communication with employees
- Hiring
- Personnel decision-making
- Termination of employees
- Annual evaluation process
- Salary setting

Because the personnel function is so important to a practice, the assignment of one physician to the function may require reorganization of operations. This may affect the duties and productivity of that physician. It may also be necessary to reallocate income.

Any inconvenience caused by a physician taking over personnel function is offset by more productive and satisfied employees. This increased productivity and satisfaction is a result of systematically and consistently communicating with employees.

Many other factors affect personnel management. Three of the most important are the evaluation process, job descriptions and the administrative policy manual.

Performance Evaluation System

The objectives of an employee performance evaluation system are:

Mr. Rankin is a consulting partner in the Cedar Rapids office of McGladrey Hendrickson & Pullen.

	Outstanding	Acceptable	Needs Improvement	Unacceptable
I. Performance of assigned duties (Appropriate Detail)				
II. Performance of technical duties (Appropriate Detail)				
III. Interoffice relationship (Appropriate Detail)				
IV. Other (Appropriate Detail)				

Figure 1

• **Determining Compensation:** Evaluation is necessary to determine merit wage increases and/or bonuses. Tangible and meaningful rewards promote better performance.

• **Employee Development:** Evaluation can help target areas where increased training is necessary to meet acceptable performance levels. An ongoing system of appraisal and evaluation is necessary to assess the employee's skills and ability to take on increasing responsibilities. It is often the key to effective promotions — putting the "right" individual in the "right" position.

• **Communication:** Employee appraisal and evaluation can serve a third function — opening lines of communication between physicians and employees. A carefully constructed evaluation system provides the opportunity to emphasize key objectives and direct efforts to meet those objectives. Employees are often motivated to better performance if, as part of the evaluation system, they can assess their own performance in relation to practice objectives.

An effective formal employee performance evaluation system has the following general characteristics:

• Information collected will be job-related.

• Performance standards will be established on an objective basis; (job description).

• Employees will know the performance standards at the beginning of an evaluation period.

• Observable behavior or results will be the focus of the evaluation.

• Emphasis will be on performance, not longevity.

We recommend each employee be evaluated annually after the first year of employment. Each new employee should be evaluated at the end of the first 6 months.

Illustrated is an abbreviated example of a performance evaluation form (Figure 1). The appropriate detail should be completed for each group of employees.

To make the process effective, each physician in the group should evaluate each employee, including the head nurse and/or office manager. The head nurse and/or office manager should also evaluate each employee. Below this level, you should attempt to gather meaningful evaluations when actual reporting relationships exist; however, you may want to avoid a cross-evaluation system between the nursing and office staff.

The employee performance evaluation conference should be conducted by the assigned physician. This increases communication and shows the physicians are involved in management of the practice. If the practice has a head nurse and/or office manager, they should be included in the process.

Evaluation time with an employee should focus on the employee and not be spent discussing other employees or medical professionals. Time should be provided for employees to provide input regarding the management and improvement of the practice. The evaluation conference should last less than an hour.

At the close of the evaluation conference, ask the employee to complete a summary. A form should be used containing:

• Employee's summary of conference

• Management's summary of conference

• Joint conclusions and/or plan for improvement

(Please turn to page 60)

- Signatures of the employee and the practice management physician

The evaluation and summary should be placed in the employee's personnel file. It is very important to have the evaluation process documented in case termination and/or disciplinary action is taken. The document signed by an employee can be a valuable asset in the courts.

After evaluations are complete, the assigned physician usually has adequate knowledge to establish merit increases. This can be accomplished in a number of ways. Start by reviewing supply and demand of available personnel in your market area. This can be helpful to understanding the level of salaries in your market.

Next, compare actual salaries with the external market. Then set salary according to merit increases or relative worth. We strongly recommend emphasis be placed on productivity and relative worth to the practice. Increases should not be based on longevity.

Suggested items for your administrative policy manual:

- *Management's responsibilities to the practice and to the employees*
- *Equal employment opportunity policy*
- *Classes of personnel*
- *Termination of employment*
- *Normal working hours and breaks*
- *Salary and performance review*
- *Pay period, time sheets and overtime policy*
- *Profit sharing plan*
- *Pension plan*
- *Deferred compensation*
- *Benefits required by law*
- *Dental insurance*
- *Group health insurance*
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- *Jury duty*
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- *Vacations*
- *Travel and expense reimbursement*
- *Smoking*
- *Reimbursement for continuing education*
- *Uniform allowance*
- *Dues to professional organizations*

Position Descriptions

The objectives of employee job descriptions are:

- Evaluation criteria — Position descriptions can be used to establish criteria for the position evaluation system.
- Communication — Position descriptions can be used with new employees, promoted employees or at evaluation time to establish a better understanding of what is expected of the employee.

The items covered in position descriptions include:

- Function of the position
- Organizational relationships
- Specific responsibilities and authorities
- Methods of accountability
- Standards of performance

It is essential to limit position descriptions to less than 2 full pages. This allows physicians to communicate evaluation criteria and expectations in a clear and concise manner.

Administrative Policy Manual

The primary objective of the administrative policy manual is to communicate practice policies to employees. A secondary objective is to allow management to apply those policies on a systematic and consistent basis over a period of time. If policies are not applied consistently, the practice is at risk and the potential exists for discrimination suits against physicians.

Your administrative policy manual should be reviewed by an attorney knowledgeable in employment law. It is critical to have policies documented so employees know the policies and management has the opportunity to apply those policies systematically and consistently.

We have outlined 4 key elements to good personnel management. These elements add predictability and stability to the personnel function. Employees will be more productive if they know who they report to, what office policies are, what their responsibilities are and how they will be evaluated.

Assessment: Precursor to Practice Management Improvement

ARTHUR H. PERKINS
Champaign, Illinois

A check-up and assessment are the first steps toward improving medical practice management. This article can help physicians manage the business side of their practice by identifying problems and needs.

A PHYSICIAN MUST ASSESS, reevaluate and redirect activities in order to be competitive. Modern medicine requires attention to the business side of a practice. It is neither good medicine nor good business for the physician to be a master of his medical specialty and simultaneously attempt to master the complexities of an active business. Obtaining qualified assistance is an important issue and understanding the state of the practice is vital to good decision making.

Why should the physician evaluate the business side of the practice? There are many reasons. The environment surrounding the practice is not static. Delivery of health services has become a dynamic process. Payment mechanisms are undergoing rapid change. Technological advancements and consumer sophistication require changes in the practice. Marketing of health care is commonplace and resources must be allocated for it.

Effective management means recognizing problems and needs, devising solutions and mustering resources to be directed in a controlled manner. Management services can be purchased from appropriate advisors, usually the CPA firm working with the practitioner. Before taking this step, the physician should be conversant enough with his practice situation to appropriately interact with the professionals from whom he seeks assistance. This article provides the practicing physician with general assessment guidelines to improve the quality of his business management.

The questions that follow are designed to raise awareness and provoke thought. It is not our purpose to provide answers or standards for detailed comparisons. The goal is to help the physician decide if additional investigation is warranted.

The questions cover 5 management areas in the medical practice. These include credit and collections; human resources; facilities, equipment and supplies; planning, marketing and growth; and financial aspects and data processing.

Managing Credit and Collections

(1) What are the gross billings and adjusted collection percentages for the current year, and how do they compare to the past 2 years?

(2) What are the dollar amounts and percentages of receivables in 30-day groupings from "0-30" through "Over 120 Days" for the current year, and how do they compare to the past 2 years?

(3) Is the collection process defined? Are

Mr. Perkins is health care consultant to the CPA firm of McGladrey Hendrickson & Pullen. He contributes to and edits their quarterly newsletter *Physicians & Physicians Groups*.

there parameters for removing uncollectable amounts from the receivables?

(4) Are there written criteria for evaluating credit risk and determining which patients must pay prior to receiving services and those who may receive credit?

(5) Are there effective procedures to make payment arrangements before further services are rendered to the slow or non-paying patient?

(6) Is prepayment required prior to rendering certain services? If so, are all appropriate services included in this category?

"Answering the questions posed here will enable the physician to discuss and contract for professional consulting and management services that will most benefit his business."

(7) Is the "Super-bill" method used or are insurance claims prepared and transmitted for patients?

(8) What is the procedure and timing for patient refunds?

(9) How are service (procedure) fees determined and implemented? Have adjustments been made in each of the last 3 years?

(10) What are the billings and percent of total billings according to the major payment sources (self-pay, Medicare, Medicaid, Blues, Workers Compensation, etc.)?

(11) Is there a defined procedure to assure patient care charges are recorded and assigned to the proper responsible party accounts, therefore resulting in timely billings? When was the procedure last reviewed?

(12) Is there a written credit policy and is it available to patients?

(13) Is a printed form used to register new patients? Does the form include data on spousal employment, family health insurance coverages and name and address of an individual to contact in event of an emergency, someone other than the patient or responsible party?

(14) When discounting service charges, is "insurance recovery" always specified?

(15) Is 80% or better of the professional services provided and diagnostic codes assigned preprinted on the charge ticket for ease of check off?

Managing Human Resources

(1) Is there an up-to-date written personnel policy and procedures manual? Does each employee have a copy?

(2) Is the wage and salary structure based on job descriptions and sound and reasonable differentials?

(3) What is the method and how often are employee performance and compensation reviews conducted? Are the results recorded and filed?

(4) How competitive is the employee wage and fringe package compared to other area physicians and hospitals?

(5) May employees expand their job knowledge through self-study (attending workshops and seminars, etc.)? Are costs paid by the practice?

(6) What is the value of the fringe benefits in relation to the total payroll for the current and previous 2 years?

(7) Is there a written policy regarding employee discounts for health care services? Is the policy followed to the letter?

(8) How is input obtained from employees regarding complaints and problems in the practice and suggestions for improvement?

(9) Which staff positions have experienced turnover in the past 2 years? Are the reasons for the changes known?

(10) What are the methods for communicating with employees in directing and coordinating the affairs of the practice? Do the methods vary according to the situation? How are significant decisions, policies and procedures communicated?

Managing Facilities, Equipment and Supplies

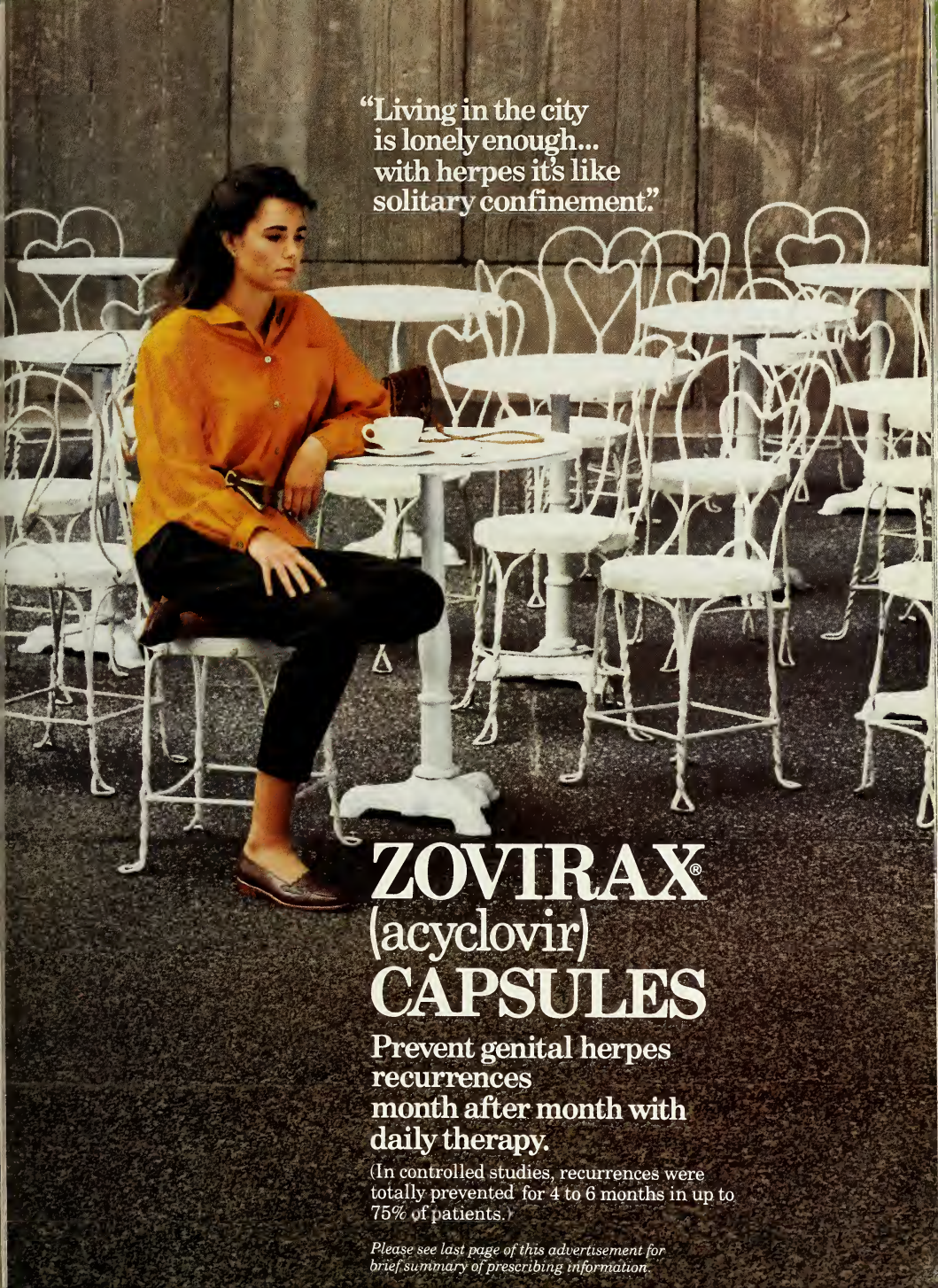
(1) What is the form of facility and equipment ownership? Is it appropriate in the light of tax legislation?

(2) What is the rental and occupancy cost per square foot of gross space and per square foot of usable space? How does it compare with similar space in the community?

(3) Does the medical equipment reflect state of the art? If not, what is the plan to replace it?

(4) Are equipment lease and maintenance costs — specifically the automated business system — appropriately allocated to clinical, ancillary and business services? If so, how?

(Please turn to page 64)



ZOVIRAX®
(acyclovir)
CAPSULES

Prevent genital herpes recurrences month after month with daily therapy.

(In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.)

Please see last page of this advertisement for brief summary of prescribing information.

ZOVIRAX®
(acyclovir)
CAPSULES

Help free your patients from recurrences.

Daily therapy

Coping with genital herpes is rarely easy. For some, the worst part is the pain and discomfort of frequent attacks—month after month, year after year. For others, the emotional burden presents a more difficult problem, leading to social isolation, anxiety, and diminished self-esteem.

Prevent or reduce recurrences

Although your patients have to live with herpes, they shouldn't have to suffer. Daily therapy with ZOVIRAX CAPSULES can help free them from the cycle of recurrent genital herpes. For many, one capsule three times a day can suppress recurrences completely while on therapy.

Generally well tolerated

Daily therapy with ZOVIRAX CAPSULES is generally well tolerated. The most frequent adverse reactions reported during clinical trials were headache, diarrhea, nausea/vomiting, vertigo, and arthralgia.

The physical and emotional difficulties posed by genital herpes are unique for each patient. The frequency and severity of recurrent episodes, as well as the emotional impact of the disease, should be considered when selecting daily therapy with ZOVIRAX CAPSULES.

Please see brief summary of prescribing information on next page.



Prevent recurrences month after month*

ZOVIRAX® (acyclovir) CAPSULES

Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psychosocial difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week post-dose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: ***Teratogenic Effects:*** Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤10 ml/min/1.73/m².

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200"- Bottles of 100 (NDC-0081-0991-55) and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light.

*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.

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Research Triangle Park
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(5) What are dollar amounts and percentage of cash receipts for premises insurance, facilities upkeep, energy consumption, electricity and telephone for the current year and previous 2 years?

(6) What is the method for projecting quantities of supplies?

(7) Who has the responsibility of obtaining and stocking supplies? What written guidelines are provided? What measures are there to control use and preclude pilferage?

Planning and Managing Marketing and Growth

(1) Are objectives stated for the business year and is progress periodically assessed?

(2) When was the last market demand analysis?

(3) Does the practice operate with a knowledge of its service area and demographics and a sense of its market share? How was this determined?

(4) Has a detailed analysis of providers in the service area (HMO's, PPO's, clinics, age mix of physicians, hospitals, nursing homes, etc.) been done and how does this impact the practice?

(5) What is the dollar amount and percent of cash receipts allocated to marketing for the current year and the previous 2 business years?

(6) Who are the major employers in the area, how many people do they employ and what health benefits do they provide?

(7) Have the barriers to health care (transportation, culture, financial, availability of providers) been specifically addressed and has an opportunity analysis been done and acted upon?

(8) Have the strategies and marketing plans of area hospital executives been assessed regarding their meaning to the practice?

(9) Should the business plan call for growth (increasing volume, expanding the range of services, more physicians)? If so, on what basis is this growth predicted?

(10) When was patient satisfaction last surveyed? When will the following aspects of the practice be reviewed?

Convenience — Location, hours, parking.

Courtesy — Telephone, receptioning, cleanliness, amenities.

Accessibility — Wait for appointments, wait to see doctor, diagnostic services.

Managing Financial Aspects and Data Processing

(1) Are you taking advantage of advances in electronic data processing and communication (computers, telephone system, word processing, etc.)?

(2) How accurate and timely is management and accounting information?

(3) Do the accounts chart and financial statements provide sufficient detail of practice revenue and expenses to define purposes and forecast needs?

(4) Are revenues and expenses allocated to responsibility centers (each doctor, laboratory, radiology, etc.) to determine profitability and progress toward goals?

(5) What is the method for allocating the following practice expenses with more than one responsibility center?

- Nurses' wages and benefits
- Professional liability insurance
- Medical supplies
- Occupancy costs
- General and administrative expenses

(6) List all routinely furnished management reports and describe how each is used.

(7) List management data items which, if available, would improve efficiency, aid in control and enhance profitability.

(8) Are there written procedures for handling cash receipts and are these procedures closely followed?

(9) What cash management techniques are employed?

Physicians constantly monitor the business side of their practice; but that closeness can give false security. There is a tendency to defer the difficult and time-consuming comprehensive business practices review. This deferral can result in lost opportunity, greater cost and lessened profitability.

Developing responses to questions that address 5 management areas will enable the physician to thoroughly analyze and assess his business situation. The assessment will bring into focus the need for an action plan to upgrade management of the practice. The physician can then determine those steps he should personally undertake and those best handled by professionals. Answering the questions posed here will enable the physician to discuss and contract for professional consulting and management services that will most benefit his business.

Kevin L. Prust

QUESTIONS AND ANSWERS



Cash Management for Medical Practices

Physicians and clinics can gain economically through effective cash management. Here, Kevin Prust, a partner in the Des Moines office of McGladrey, Hendrickson & Pullen, discusses cash management procedures with substantial bottom line benefits.

What are the basics of good cash management?

The basics of good cash management involve receiving money quickly, holding on to that money as long as possible, monitoring cash needs and cash availability and investing excess cash at the highest possible interest rate while considering risk and need for liquidity.

The benefit of these techniques is improvement of net income through increased interest income and/or reduced interest expenses.

How can a clinic or physician's office facilitate quick collections?

Two functions affect early availability of funds: (1) billing patients and insurance companies for services rendered and (2) receiving and depositing payments.

Patients are becoming used to paying for the service at the time of the visit. Bills for patient services should be generated promptly, not only at the end of the month. By using forms which list the various services offered, the doctor can fill out the form at the end of the visit and ask the patient to hand it to the business office for processing on the way out.

Three steps can be taken to speed up payments from insurance companies: (1) Make sure the patient supplies all necessary information for filing insurance claims. If the office does not have a copy of the form for a specific carrier, the patient should bring it when he comes; (2) Make sure forms sent to insurance companies are filled out correctly; and (3) Bill insurance companies weekly even if your normal billing cycle is monthly for individuals.

Receiving and depositing checks is the second critical part of collecting quickly. Checks should be deposited on the day they are received to meet the bank's deadline for same-day processing. A post office box may be an inexpensive way to receive checks early enough to process on the same day. To save sorting time, several post office boxes can be used for separate types of payments. Remittance envelopes will help ensure payments are mailed to the proper location.

When should vendors be paid?

Vendors should always be paid on the due dates unless a discount is allowed for early payment. Most discounts provide substantial financial incentive and should be taken. All discounts should be evaluated.

Terms for most invoices are net 30 days. Many vendors will accept the postmark as an indication invoices are paid on time.

(Please turn to page 66)

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QUESTIONS AND ANSWERS

(Continued from page 65)

Where does budgeting fit into medical practice cash management?

Operating and capital budgets are critical tools of cash management. Few medical practices maintain adequate budgets. In addition to helping control expenditures, a budget is an integral portion of a cash management program because it allows you to review the future level and timing of cash needs or surpluses. The knowledge gained from this review will help you in investment decisions by allowing longer term investments which yield higher rates. It will also help in decisions to seek additional cash at favorable terms when necessary.

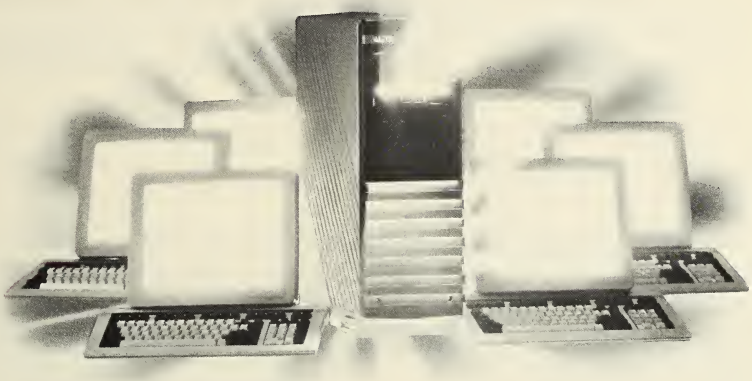
How can a long term optimum cash level be maintained?

Preparing and tracking cash budgets will give the necessary information to maintain an optimum cash level for the longer term. For the short-term, it is not enough to know the balance in the checkbook because banks do not give immediate credit for deposits the day they are made and cash is not withdrawn from an account the day a check is written.

Organizations should strive to manage available cash, not checkbook cash, to improve operating performance. Cash is not available for investment until funds for checks have been collected. Preparing accurate cash budgets will involve working with the bank to determine the length of float to allow for both checks and deposits.

In addition to the bank statement, every office should receive a monthly account activity summary from the bank. This summary will show average available cash balances for the month and fees charged for maintaining the account. If there is a large net compensation to the bank, too much cash is being left in the acccount. Excess funds can be used for various short and long-term investments such as repos, sweep accounts and money market accounts. Each type of investment should be analyzed with respect to the level of risk, the term and the yield.

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Look Into the Program Before the Open Enrollment Ends March 1, 1987

Computed Tomography and Myelography of the Lumbar Spine — Community Hospital Experience

DAVID J. HILGER, M.D., and
THOMAS BUCHANAN, M.D.

Fort Dodge, Iowa

Both the C.T. scan and the myelogram have benefits in evaluating the lumbar spine. At Trinity Regional Hospital in Fort Dodge, Iowa, a comparison was made of the 2 methods. C.T.'s may yield more overall information but myelograms give additional information about nerve roots.

A COMMUNITY HOSPITAL performed a retrospective study to compare the modalities used and results obtained in evaluation of the lumbar spine since a C.T. scanner was introduced. The hospital compared the use and results of C.T. versus myelography. When this article was written, approximately 85 C.T. studies were performed. Approximately 21 myelography studies were performed in the same time period. Thirty-four abnormal C.T. studies were reviewed and correlated with myelography and surgical findings. Eighteen cases had both C.T. and myelograms. Thirteen of these had surgical follow-up.

The authors are associated with Trinity Regional Hospital, Fort Dodge, Iowa.

Method

Patients were studied using a Picker 600 S scanner with contiguous 4 mm. cuts. Three disc spaces were evaluated unless otherwise indicated by the patients' clinical findings. The gantry was not tilted at the upper levels and then was tilted at L5-S1. Images were photographed at both soft tissue and bone windows.

Myelograms at Trinity Regional were often ordered to confirm C.T. findings when surgery was indicated. Myelograms were also performed when the C.T. findings did not correlate well with the patient's clinical findings. They were performed on patients who had strong clinical findings and negative or indeterminate C.T.

Results

The thirty-four abnormal cases evaluated by C.T. were broken down into these primary diagnoses: 1) herniated discs, 15 cases; 2) bulging discs, 2 cases; 3) spondylolisthesis, 9 cases;

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR THE MONTH OF FEBRUARY 1987



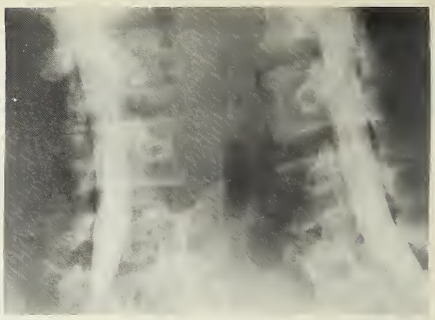


Figure 1a. C.T. at the level of spondylolisthesis shows asymmetry with a question of bulging disc on the right. Figure 1b. Myelography does not show evidence of an extradural defect.

4) spinal stenosis, 5 cases, and 5) severe facet disease, 1 case. Myelography and C.T. comparisons were made in 18 cases. Retrospectively, each exam was determined to be diagnostic on myelography or C.T. A determination was made on which modality contributed information not contained in the other modality.

In the majority of cases, superior information was obtained by C.T. and complementary information was obtained by myelography. C.T. is accurate and sensitive in detection of herniated discs. C.T. is more accurate in some cases of lateral discs and in the lower lumbar spine where the increased epidural space can make evaluation for small discs difficult on myelography.[2] (Case 5)

C.T. is effective in evaluating the etiology of stenosis whether secondary to facet hypertrophy, flavum hypertrophy or combination. (Case 18). C.T. often gives more information than myelography because of its higher discrimination of soft tissue and bony attenuation in stenosis. C.T. gives accurate evaluation of lateral foraminal stenosis.[3]

C.T. is valuable in evaluation of patients with spondylolisthesis. C.T. often demonstrates the defective pars. However, thorough evaluation of the bony elements must be made. Slight asymmetry of the annulus at the level of the disc often occurs and should not be interpreted as a disc.[4, 5]

Myelography offers complementary information to C.T. It shows extradural defects on the subarachnoid space. With water soluble contrast, it also outlines the nerve rootlets well and detects swelling. In several cases myelography yielded information not obtained on C.T.

In one case myelography altered presurgical diagnosis but did not alter the level. This case showed a possible disc at L3-4. C.T. showed a swollen nerve rootlet and impression possibly from a hypertrophied ligamentum flavum. Retrospectively, the possible disc on C.T. represented a swollen nerve rootlet. In another case myelography showed multiple large arachnoid cysts not identified on C.T. (Case 17). In this case large S1 arachnoid cysts were found on myelography. Because they were not clinically suspected, low C.T. cuts were not obtained.

Myelography may show incidental abnormalities at levels not studied by C.T. It should be noted that metrizamide C.T. yields additional information and probably would have shown the abnormalities picked up on myelography. This has been shown.[6] Since this involves the same invasiveness as myelography, we've performed this procedure only occasionally.

Case Reports

Case 4

This case involves a 38-year-old male with a history of back injury 2 years previously. A myelogram at that time was reported to be normal. Six months prior to admission the patient developed pain down the back of the right hip, thigh and leg. Lumbar spine radiographs showed a spondylolisthesis at L5-S1. A C.T.

(Please turn to page 71)

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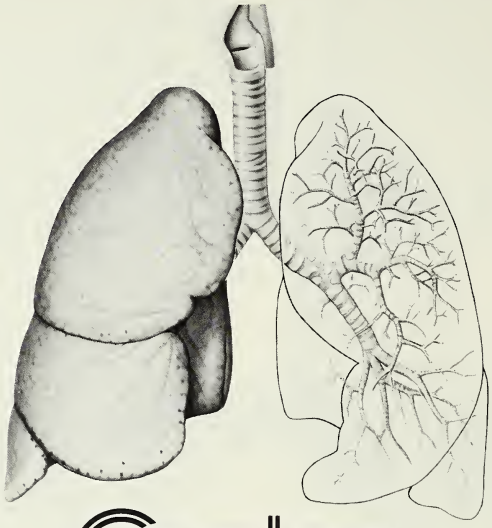
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Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- In renal impairment, safe dosage of Ceclor may be lower than that usually recommended. Ceclor should be administered with caution in such patients.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, erythema multiforme, serum-sickness-like reactions): 1.5%; usually subside within a few days after cessation of therapy. These reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.
- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%.

Abnormalities in laboratory results of uncertain etiology

- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children)
- Abnormal urinalysis; elevations in BUN or serum creatinine
- Positive direct Coombs' test
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performed August 8, 1983, showed spondylolisthesis with bulging annulus at L5-S1 on the right (Figure 1a). Myelogram showed spondylolisthesis without extradural defect (Figure 1b). A Gill procedure with fusion was performed. There was no evidence of a bulging or ruptured disc at surgery.

Case 5

A 23-year-old with left posterior hip pain did not respond to conservative treatment. A C.T. was performed August 23, 1983 and demonstrated a bulging disc at L4-L5 (Figure 2a). Electromyelography showed a conductive abnormality at this level. A myelogram performed September 14, 1983, showed mild increased space at L4-L5 without definite evidence of nerve root encroachment (Figure 2b). Surgery September 15, 1983, showed a bulging disc at L4-L5.

(Please turn to page 72)

TABLE 1

Case	C.T. diagnosis	Myelography diagnosis	C.T. more informative	Myelography more informative	Surgical diagnosis
1.	Loterol foraminol stenosis L4-5 on right	Extrodurol defect L4-L5 on right	X		laterol foraminol stenosis L4-L5 on the right
2.	Migated disc L4-L5 an left	Extrodurol defect L4-L5 an left with swelling L5 root			Disc with migrotion
3.	Proboble disc L4-L5 on left	Extrodurol defect, L4-L5 possibly from ligomentum flovum		X	Encroachment secondory to ligomentum flovum hypertrophy
4.	Spondylolisthesis with asymmetric praminence of onnulus on right	Spondylolisthesis		X	Repoir with fusion, no disc
5.	Bulging disc L4-L5	Slight increase ventral spoce L4-L5	X		Bulging disc
6.	Disc L4-L5 an right	Proboble disc L4-L5 on right	X		Extruded disc L4-L5
7.	Herniated disc L4-L5 on right	Disc L4-L5 on right			Disc L4-L5 on right
8.	Bulging onnulus L3-4, L4-5	Bulging onnulus L4-L5, swelling L4-L5 nerve root			Lominectomy
9.	Large disc impinging on L5 nerve root	Lorge disc, L5 on left			Sequestered disc
10.	Spondylolisthesis L4-L5 with encroochment from flovum ond onnulus	Encroochment L4-L5 on right	X		No disc, nerve root encroochment on right
11.	Spondylolisthesis L5-S1 degenerative chonges opaphyseol joints	Spondylolisthesis L5-S1			
12.	Hernioted disc L4-L5	Extrodurol defect L4-L5			Bulging disc with impingement on root
13.	Proboble disc L4-L5 on right	Non conclusive, incomplete filling L4-L5 nerve root on right	X		
14.	Morked focet hypertrophy	No extrodurol defect	X		
15.	Disc L3-L4 on left, facet diseose L4-5 on left	Proboble disc L3-4 on left			
16.	Spinol stenosis L3-4 L4-5, secondary to hypertrophied ligamentum flovum	L3-4, L4-5 stenosis with swollen roots L3 on left, L4 biloteral			Spinal stenosis
17.	Mild stenosis L4-L5, bulging onnulus L4-L5 on left ond L3-4 on left	Bulging onnulus L4-5 with stenosis, orochnoid cysts L5-S1		X	
18.	Spondylolisthesis L4-5, stenasis L4-5 secondory to morked facet hypertraphy	Severe stenosis L4-L5	X		Spinol stenosis bulging disc



Figure 2a.

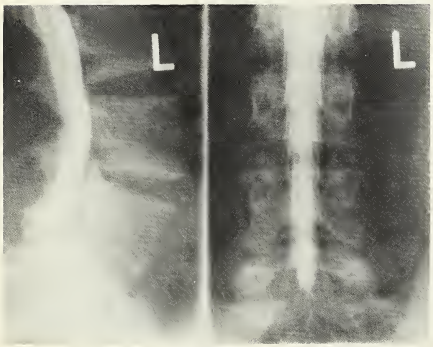


Figure 2b.

Figure 2a. C.T. shows bulging disc at the L4-L5 disc space on the right. Figure 2b. Myelogram shows increased ventral space on the lateral view.

Case 17

A 69-year-old female with weakness and low back pain, was admitted October 27, 1983. DTR was normal on admission but was found to have decreased right knee jerk one month later. C.T. November 8 showed probable mild spinal stenosis at L3-4 with bulging annulus at L3-L4 and L4-L5. A myelogram, performed November 14, showed bulging annulus at L3-L4 and L4-L5. In addition myelography showed large occult arachnoid cysts involving the S1 nerve rootlets and smaller cysts involving the L5 nerve rootlets. Surgical follow up is not available.

Case 18

An 80-year-old had right-sided sciatica for 7 weeks. A C.T. October 25, 1983, showed mild spondylolisthesis at L4-L5 probably secondary to facet disease. C.T. also showed focal stenosis at L4-5 by marked facet hypertrophy and lateral foraminal stenosis (Figure 3a). Myelography October 31, 1983, showed focal stenosis at L4-5 (Figure 3b).

Conclusion

The accuracy of C.T. in spinal disorders and the non-invasive nature of the techniques make it the logical first choice in evaluation of the lumbar spine after spine radiographs.

It has been suggested that C.T. obviates the need for myelography. Our results confirm that C.T. yields more information than myelography and is very sensitive for abnormalities.

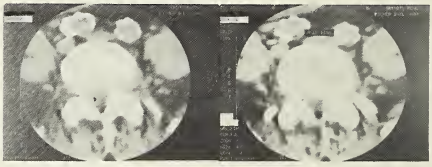


Figure 3a.

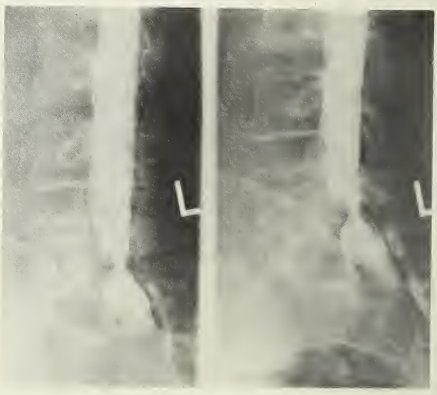


Figure 3b.

Figure 3a. C.T. at the facet level shows stenosis with a bulging disc. Figure 3b. Myelography also shows stenosis but does not differentiate bone from soft tissue.

C.T. does not eliminate the need for myelography. Myelography yielded additional information in 3 of 18 cases and increased the diagnostic confidence in several other cases. The advantage of myelography is filling of the nerve root sheath; this can be helpful in differentation of an enlarged nerve root versus an adjacent disc. Myelography can also give information about other levels not evaluated by C.T. We also found myelography to be helpful in a case of spondylolisthesis with assymmetry of the annulus.

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Marion E. Alberts, M.D.

COMMENTING EDITORIALLY



CHANGING CONCEPTS OF PRACTICE

"Today is not yesterday: we ourselves change; how can our works and thoughts, if they are always to be the fittest, continue always the same? Change, indeed, is painful; yet ever needful; and if memory have its force and worth, so also has hope."
Carlyle Thomas (1795-1881)

WE CANNOT IGNORE the changes occurring in the practice of medicine. More change will alter the complexion of health care delivery. Physicians in their final years of practice may be able to ride out the era of change. The younger physicians have, for the most part, started new concepts of practice management. It may be difficult for the older ones to understand the practices of the younger, but it must occur.

A physician's preparation for the practice of medicine has been a dismal failure in one particular area. Whether we like it or not, the practice of medicine is big business. Besides ministering to our patients we carry the same responsibilities any other business assumes. Yet, little training is given in business principles, accounting and business law. We must be managers of an office which has responsibilities of employment, accounting for income and expenses, legal affairs, as well as involvement with the government and other third-parties. There will be continued growth in governmental regulations with more direct and indirect imposition upon the fiscal affairs of medical practice. These can result only in economic changes, probably not to the advantage of the physician.

The supply of physicians is increasing. This will promote competition which may increase the workload of many physicians competing in the health services market. Already we see a resurgence of after-hours clinics, renewal of week-end office hours, and in some areas a renewal of the time-honored "house call."

Those of us who graduated from medical schools before the 1970's can recall that all these practice responsibilities were our way of life. Then, everything seemed to change. Now the public and competition are bringing back the "old days."

Further competition comes from the hospitals through their various methods of controlling the practice of medicine. Trauma centers, emergency and out-patient departments, sports centers, arthritis centers, surgicenters, and hospital sponsored clinics have taken a great number of patients from the private practitioner. Aggressive marketing by these large groups, as well as by private immediate care centers, has had impact upon the lone practitioner or small partnership.

All this has led physicians to "fight fire with fire." Business planning has become mandatory. More and more we are invited to marketing seminars. Physicians must identify their position and project goals for future survival as health care providers. These goals must be clearly identified so strategies may be projected to achieve them. Herein comes the concept of good practice management coupled with marketing the services one offers. The physician, in a word, must become an astute

business organizer. If he has not the time for the business of medicine, practice management personnel must be employed. Modern management skills must be applied to take advantage of the ways of the present and the future. Failing that the physician may likewise fail. His alternative is to be an employee of a large group, collect his salary every 2 weeks and leave the business of medicine to those so skilled.

This issue of IOWA MEDICINE looks briefly at these matters. The concept is very complex. We hope we have instilled some questions in the minds of our readers so they will pursue the subjects in greater detail. — M.E.A.

The editors invite your comments, inquiries, and suggestions. Please address Letter to the Editor, IOWA MEDICINE, 1001 Grand Avenue, West Des Moines, Iowa 50265.

FUNDS ARE AVAILABLE AGAIN THIS YEAR *for many disabled children and young adults from low-income families to receive free dental treatment.* ***Arthur Nowak,*** *D.M.D., Department of Pediatrics, is director of the Dental Care for Persons With Disabilities program. The UI is continuing its cooperation with the Iowa State Department of Health to sponsor the statewide dental program. Eligible persons up to age 21 can receive preventive and restorative dental care at no cost. Dr. Nowak urges professionals who know of children eligible to participate in the free dental program to contact him now while funds are available (319/356-1517).*

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OUR MAN IN EDUCATION



PRACTICE MANAGEMENT AND OPSIMATHY

"OPSIMATHY?" I can just hear you asking yourself that — because it's exactly what I did recently when I stumbled upon this strange word. My own fat dictionary didn't list it, but in the library's huge Oxford English Dictionary, there it was: "the ability to learn late in life." An opsimath, of course, is one who begins to learn late in life. What a perfect word for the vocabulary of a CME professional! I was sure it would be enormously useful to me. The only trouble was that it would require defining every time I'd want to use it, since it seems about as obscure a word as it is splendid for a particular use.

As medical life is currently churning with the reality of enormous changes in pricing, control of fees, external as well as internal pressures, "managed care," new practice arrangements, advertising and so on, there suddenly develop with these concepts a new vocabulary, new equipment, new information and skills to be learned. That might be difficult enough, but along with all that come enormous changes in interpersonal relationships, one's social and economic status, and even one's sense of professional and self-worth — all these involving attitudinal, emotional shifts even harder to consummate than acquiring new intellectual baggage.

Ever since my medical school days I can recall discussions about whether the medical school should try to teach students "how to run an office," or the realities of paying rent, hiring/firing employees, choosing equipment, sending bills, and so on. There have always been at least 2 major reasons why not. First, medical students carry too little actual responsibility for it. ("They don't care and wouldn't remember anyway. Let it be taught/learned during residency or in practice when the need will be real; the young doctor will learn swiftly at that 'teachable moment' — why waste lots of energy trying to teach a one-year-old to read?") Second, full-time faculty members are insulated from those realities. ("They couldn't teach it because they don't know anything about it.") I believe both those arguments were both right and wrong — then and now.

In our curriculum for undergraduate medical students at Iowa, brief information is provided about the theoretical and actual structure of the health care system during the sophomore class in preventive medicine. Beyond that, it's a matter of soaking it up from the environment, that vague but exceedingly powerful education we call role-modeling — the behavior, comments, attitude, gossip, swirl of information and misformation that students absorb for better or worse. It is not selected, guided, monitored or maybe even acknowledged by curriculum committees, yet its power and effects are enormous in producing the "professionalization" of the young student.

If doctors of the future will need to understand and work with computers, should it be medical schools that teach them? It doesn't teach them to drive cars, either, nor do we have courses on the relationship of the automobile to medical practice — hardly even the relationship between speed limits, seat belts and trauma. If we were to include formal instruction, where would come the time and resources to do it? Curriculum decisions are al-

(Please turn to page 88)

Dr. Caplan is Associate Dean for Continuing Medical Education at The University of Iowa College of Medicine.

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INDERAL LA should not be considered a simple mg for mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose. When changing to INDERAL LA from conventional propranolol, a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval. In most clinical settings, however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect, INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate, systolic pressure and rate pressure product. INDERAL LA can provide effective beta blockade for a 24-hour period.

The mechanism of the antihypertensive effect of INDERAL has not been established. Among the factors that may be involved in contributing to the antihypertensive action are (1) decreased cardiac output, (2) inhibition of renin release by the kidneys, and (3) diminution of tonic sympathetic nerve outflow from vasomotor centers in the brain. Although total peripheral resistance may increase initially, it readjusts to or below the pretreatment level with chronic use. Effects on plasma volume appear to be minor and somewhat variable. INDERAL has been shown to cause a small increase in serum potassium concentration when used in the treatment of hypertensive patients.

In angina pectoris, propranolol generally reduces the oxygen requirement of the heart at any given level of effort by blocking the catecholamine-induced increases in the heart rate, systolic blood pressure, and the velocity and extent of myocardial contraction. Propranolol may increase oxygen requirements by decreasing left ventricular fiber length, end diastolic pressure and systolic ejection period. The net physiologic effect of beta-adrenergic blockade is usually advantageous and is manifested during exercise by delayed onset of pain and increased work capacity.

In dosages greater than required for beta blockade, INDERAL also exerts a quinidine-like or anesthetic-like membrane action which affects the cardiac action potential. The significance of the membrane action in the treatment of arrhythmias is uncertain.

The mechanism of the antimigraine effect of propranolol has not been established. Beta-adrenergic receptors have been demonstrated in the pial vessels of the brain.

Beta receptor blockade can be useful in conditions in which, because of pathologic or functional changes, sympathetic activity is detrimental to the patient. But there are also situations in which sympathetic stimulation is vital. For example, in patients with severely damaged hearts, adequate ventricular function is maintained by virtue of sympathetic drive which should be preserved. In the presence of AV block, greater than first degree, beta blockade may prevent the necessary facilitating effect of sympathetic activity on conduction. Beta blockade results in bronchial constriction by interfering with adrenergic bronchodilator activity which should be preserved in patients subject to bronchospasm.

Propranolol is not significantly dialyzable.



INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension; it may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic. INDERAL LA is not indicated in the management of hypertensive emergencies.

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris.

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache. The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use.

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis, especially for treatment of exertional or other stress-induced angina, palpitations, and syncope. INDERAL LA also improves exercise performance. The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation. Clinical improvement may be temporary.

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock, 2) sinus bradycardia and greater than first degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL.

WARNINGS. CARDIAC FAILURE: Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely; or INDERAL should be discontinued (gradually, if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following abrupt discontinuance of INDERAL therapy. Therefore, when discontinuance of INDERAL is planned the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (e.g., chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

MAJOR SURGERY: The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, e.g., dobutamine or isoproterenol. However, such patients may be subject to protracted severe hypotension.

Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers.

DIABETES AND HYPOGLYCEMIA: Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes. In these patients, it may be more difficult to adjust the dosage of insulin.

THYROTOXICOSIS: Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol does not distort thyroid function tests.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME: several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case, this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS. *General.* Propranolol should be used with caution in patients with impaired hepatic or renal function. INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies.

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure. Patients should be told that INDERAL may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

Clinical Laboratory Tests. Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS: Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension.

Carcinogenesis, Mutagenesis, Impairment of Fertility. Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

Pregnancy: Pregnancy Category C. INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose.

There are no adequate and well-controlled studies in pregnant women. INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. INDERAL is excreted in human milk. Caution should be exercised when INDERAL is administered to a nursing woman.

Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

Cardiovascular: bradycardia, congestive heart failure, intensification of AV block, hypotension, paresthesia of hands, thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type.

Central Nervous System: lightheadedness, mental depression manifested by insomnia, lassitude, weakness, fatigue; reversible mental depression progressing to catatonia, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics.

Gastrointestinal: nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic: pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory: bronchospasm.

Hematologic: agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Autoimmune: In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous: alopecia, LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily. If patients are switched from INDERAL tablets to INDERAL LA capsules, care should be taken to assure that the desired therapeutic effect is maintained. INDERAL LA should not be considered a simple mg for mg substitute for INDERAL. INDERAL LA has different kinetics and produces lower blood levels. Retitration may be necessary especially to maintain effectiveness at the end of the 24-hour dosing interval.

HYPERTENSION—*Dosage must be individualized.* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic. The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved. The usual maintenance dosage is 120 to 160 mg once daily. In some instances a dosage of 640 mg may be required. The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks.

ANGINA PECTORIS—*Dosage must be individualized.* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three to seven day intervals until optimum response is obtained. Although individual patients may respond at any dosage level, the average optimum dosage appears to be 160 mg once daily. In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established.

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS).

MIGRAINE—*Dosage must be individualized.* The initial oral dose is 80 mg INDERAL LA once daily. The usual effective dose range is 160-240 mg once daily. The dosage may be increased gradually to achieve optimum migraine prophylaxis. If a satisfactory response is not obtained within four to six weeks after reaching the maximum dose, INDERAL LA therapy should be discontinued. It may be advisable to withdraw the drug gradually over a period of several weeks.

HYPERTROPHIC SUBAORTIC STENOSIS—80-160 mg INDERAL LA once daily.

PEDIATRIC DOSAGE—At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use.

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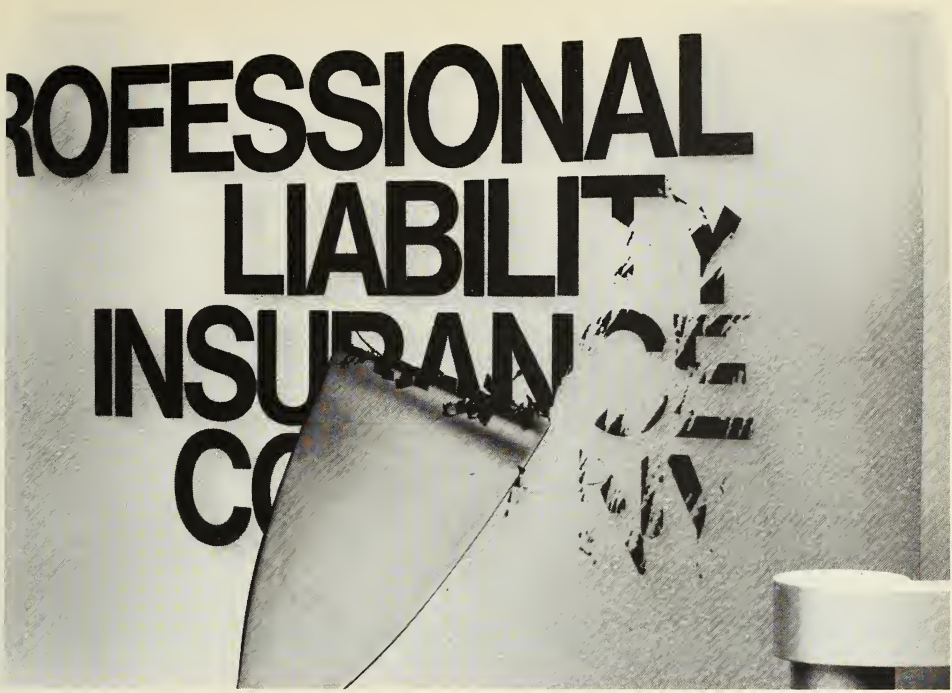
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DRUG THERAPY REVIEW

Reynold Spector, M.D., Editor

MUROMONAB-CD3 (ORTHOCLONE OKT3): THE FIRST MONOCLONAL ANTIBODY APPROVED FOR THERAPEUTIC USE

THE MOST COMMON CAUSE of early graft loss is acute rejection of renal allografts due to activation of a T-cell mediated immune response against the graft by the host. Immunosuppressive therapy can be divided into 2 phases: (1) daily maintenance therapy and (2) acute antirejection treatment. Conventional maintenance immunosuppressive therapy has consisted of steroids and azathioprine, with cyclosporine as a relatively new addition to the armamentarium. The backbone of antirejection treatment has been bolus methylprednisolone therapy. More recently, polyclonal antibodies such as antithymocyte globulin (ATG) and antilymphoblast globulin (ALG) have been developed. These antibodies are obtained from animals immunized with human lymphoid tissue by separating the serum and purifying the gamma-globulin portion. However, because of generation of different antibodies against the many antigens on the cells, the polyclonal antibodies are very heterogenous and have variability in reactivity as well as batch-to-batch potency. Further, only 1 to 2% of the IgG so produced is directed against the T-cells. This means that very large (gram) doses of these agents must be employed for a therapeutic effect, mandating administration through central venous access and exposing the patient to a large amount of foreign protein, with a potential for a serum sickness reaction. Finally, the supply of these polyclonal antibodies has not been consistent.

Using a technique first described by Köhler and Milstein in 1975, it has become possible to produce monoclonal antibodies, each molecule of which is identical, and that are directed against a specific target or antigenic determinant. Although monoclonal antibodies have, for many years, been used diagnostically and in vitro, OKT3 is the first to have been approved for a therapeutic application and is now the drug of choice for steroid-resistant acute rejections. Monoclonal antibodies are made by immunizing an animal (usually a mouse), with an appropriate antigen, inducing formation of B-lymphoblasts that produce antibody specific for that antigen. These cells are harvested from the mouse spleen and fused with murine myeloma cells to form hybridomas that have the lymphoblast's ability to produce the specific antibody combined with the immortality of the tumor cell. Hybridized cells can either be grown in vitro to produce antibody or, more commonly, are injected into peritoneal cavities of mice, causing ascites with concentrations of the antibody at levels of 1 to 5 mg/ml. The advantage of monoclonal over polyclonal antibodies is their reproducibility in terms of specificity, purity, and predictability. Only small doses are needed for therapeutic effect. Further, the supply of such a monoclonal antibody is, in principle, unlimited.

(Please turn to page 80)

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DRUG THERAPY REVIEW

(Continued from page 78)

Chemistry and Pharmacology

Prior to the introduction of OKT3, no generic naming system existed for the monoclonal antibodies. A new naming system has now been developed, reflecting the animal of origin, with numbers designating the specific target antigen. Orthoclone OKT3, officially known as Muromonab-CD3, is a murine monoclonal IgG2a antibody that reacts specifically with the 20,000 Dalton CD3, or T3, molecular complex of T-cells, which is closely linked on the cell surface to the T-cell antigen recognition structure. OKT3 does not react with B or null cells, granulocytes, monocytes, platelets, or cells of other tissues. After OKT3 binds to the T3 complex, it blocks the ability of the host T-cells to recognize foreign antigens. OKT3 is a pan-T-cell antibody and reacts with 100% of peripheral T-cells, clearing them from circulation within 1 hour after the drug is given. As there is no change in complement levels in patients treated with OKT3, complement does not appear to be involved in this clearing. Labeled cell studies have shown that opsonized cells are entrapped in the liver and spleen and are then removed by the reticuloendothelial system.

OKT3 can induce modulation or loss of the T3 antigen from the surface of T-lymphocytes. As opposed to "capping," with redistribution and internalization of the antigen inside the receptor, OKT3 causes "shedding" or vertical movement with liberation of the molecule from the cell. Modulation does not affect cell viability, and these cells are not removed from the circulation. Although they no longer react with OKT3, they do retain their other T-cell markers (e.g., T_4 and T_8). Fortunately, the T-cell antigen recognition structure is lost with the T_3 antigen, and in vitro and in vivo studies have shown these cells to have lost their immune response function. Functional T-cells appear 24 to 48 hours after OKT3 treatment ceases, and there has been no long-term effect found on the immune system. Neither the rate of reappearance of the T3 antigen after OKT3 treatment nor the level of its expression has been found to correlate with occurrence of or interval time to subsequent rejection.[1]

Trials of Efficacy

Acute Primary Rejection

The Ortho Multicenter Group compared the effectiveness of OKT3 with that of standard pulse methylprednisolone therapy in a prospective, randomized study of 123 cadaver renal transplant patients undergoing their first episode of acute rejection.[2] All had been on conventional immunotherapy with 100 to 150 mg/day of azathioprine and 2 mg/kg/day of prednisone followed by a taper. Sixty-three patients received OKT3, at a dose of 5 mg/day IV bolus for 14 days, during which the azathioprine was reduced to 25 mg/day and prednisone to 0.5 mg/kg/day. Sixty patients comprised the conventional treatment group and received methylprednisolone I.V. 500 mg/day for 3 days followed by prednisone po 3 mg/kg/day tapered over 1 week to 1 mg/kg/day. Fifty-eight of 62 (94%) of the patients receiving OKT3 had reversal of the acute rejection episode, as compared with 45 of 60 (75%) of those treated with conventional therapy, a difference that was highly significant ($p<0.01$). The mean time of reversal was 3.3 days in the OKT3 group vs. 4.9 days in the steroid group. Use of OKT3 to reverse first acute rejection episodes did not prevent recurrence of rejection. Thirty-eight of 58 (66%) of the OKT3 patients experienced a second rejection episode, with this noted in 33 of 45 (73%) of the conventional treatment group. There was 62% kidney survival at 1 year in the group receiving OKT3, compared to 45% in the steroid group, this difference being entirely attributable to the reduced rate of early graft loss due to unreversed rejections.

Similarly, Haag studied 57 cadaveric renal transplant patients with first episodes of rejection, treated with either maintenance cyclosporine and prednisone, or cyclosporine, prednisone, and azathioprine.[3] All received 3 daily boluses of methylprednisolone 5-10 mg/kg IV before commencement of OKT3 treatment. Thirty-seven of 57 (65%) had reversal of rejection with steroids alone. Of the remaining 20, 19 reversed after 10 days of 5 mg/day of OKT3.

There have been no randomized trials comparing OKT3 and ATG/ALG in a head-on fashion; however, 9 to 25% of first rejection episodes do not reverse with ATG/ALG.[4] In an Ortho sponsored rescue protocol, 225 cadav-

eric renal transplant recipients with steroid resistant acute rejection, who had either failed to reverse with ATG/ALG therapy, or in whom its use was contraindicated, were given OKT3. Sixty-five percent of these patients had reversal of rejection after OKT3 treatment, with 54% of these grafts still functioning at 6 months of follow-up.[5] In summary, a place has clearly been established for OKT3 in treatment of acute rejection after unsuccessful treatment with pulse steroids.

Use of OKT3 in Maintenance Immunosuppressive Therapy

Studies using OKT3 as a single agent immediately posttransplant have supported its immunosuppressive effects; however, its prophylactic use against rejection has not been established. Of 6 cadaveric renal transplant patients on OKT3 alone starting the day before transplant to day 13, followed by 3 mg/kg/day of Azathioprine, Vigeral noted early acute rejections in all 6, with a mean time interval to rejection occurrence of 13 days. All 6 had normalization of renal function after steroid therapy.[6] Thus, there is no advantage in using OKT3 for maintenance immunosuppression, and its use should be reserved for episodes of acute rejection.

Side Effects

The commonest adverse reaction to OKT3 is a first dose response. Of the 63 patients receiving OKT3 in the Ortho Multicenter Group, 73% were noted to have pyrexia after the first dose, with 57% experiencing chills, 10% tremors, 21% dyspnea, 14% chest discomfort, and 12% nausea and vomiting. None of these symptoms were seen after the second or subsequent doses of the drug, and all patients had a negative OKT3 skin test prestudy, eliminating a hypersensitivity reaction as the cause. These symptoms are thought to be due to mediators and lymphokines released from T-cells during the opsonization process. This has been supported by subsequent studies showing a lack of first dose reactions with other monoclonal antibodies that do not cause lymphocyte destruction. These symptoms are minimized by premedication with steroids and acetaminophen.

In addition to the first dose effects, a smaller subset of these patients (5 of 107) developed pulmonary edema. Retrospective review of their records revealed all had a greater than 3% weight gain in the week prior to the treatment. With mandatory chest X-rays before therapy and restriction to OKT3 use in patients with less than 3% weight gain in the days prior to therapy, none of the subsequent 311 patients treated with OKT3 have developed pulmonary edema.

There has been a recent report of 1 living related renal and 3 cadaveric transplant patients treated with OKT3 for acute rejection that developed headache, CSF pleocytosis (polys 8-400), and fevers during the therapy.[7] Three had accompanying meningeal signs. In all cases, cultures were negative and CSF glucose and protein were normal; however, the concern about an infectious process in these immunosuppressed patients cannot be overestimated and may cause premature or unnecessary changes in immunosuppressive therapy.

There has been no difference in incidences of infection in patients receiving OKT3 as compared to other immunosuppressive therapy. To date, there have been no studies to investigate effects during pregnancy or long-term oncogenesis. As with other immunosuppressives, there may be an increased incidence of lymphomas related to the intensity and duration of immunosuppression.

Limitations

Further clinical studies have shown only 1 major problem limiting the effectiveness of monoclonal antibody therapy. The host's immune response to the antibody limits use of this agent to 1 course in any given patient. Eighty percent of the original Ortho Multicenter Group patients were found to have IgG antibodies to OKT3 at the end of the study, with titers ranging anywhere from 1:100 to 1:1000.[2] There was no correlation between presence of these anti-OKT3 antibodies and success of treatment; and there was also no anaphylaxis, serum sickness, or hypersensitivity reactions noted in these patients. Antibody titers against OKT3 have been shown to rise at days 9 to 11 of single agent OKT3 treatment, but develop later and in lower titers in patients receiving other immunosuppressives concurrently.[4] Isoelectrofocusing techniques have revealed that these antibodies are of 2

(Please turn to page 82)

types. There are antiisotypic antibodies, specific for the IgG backbone, and antiidiotypic antibodies, directed at the variable region of the monoclonal antibody — that part giving it therapeutic importance. Although 1 patient has been noted to have elevated titers before monoclonal antibody treatment, clinical reversal of rejection was still achieved.[8] There has been no correlation of preexisting antibodies against OKT3 with severity of side effects during treatment. Although antiisotypic antibodies themselves do not appear to affect subsequent treatment with OKT3, antiidiotypic antibodies would render the drug ineffective. Consideration has been given to the development of different monoclonal antibodies having the same target but distinct idiotypes. This might permit successful consecutive treatment with maintained therapeutic effect.[9]

Administration

Because OKT3 can currently be used only once for a given patient, it is important to document acute cellular rejection (with a renal transplant biopsy) that is clinically steroid resistant before employing the drug. OKT3 is supplied in 5 ml amps containing 1 mg/ml of a sterile solution. Current dosing recommendations are 5 mg IV bolus each day for 10 to 14 days of treatment. There are varying opinions whether other immunosuppressives should be reduced during OKT3 therapy. In any case, these drugs should be reestablished at their regular prerejection doses 2 to 3 days before the OKT3 is stopped. Prednisone is continued at a dose of 0.5mg/kg/day. OKT3 can be given by peripheral vein and does not require central line placement. It must be drawn through a 0.22 micron low protein-binding filter before administration. The first dose reaction can be minimized by premedication with acetaminophen and 1 mg/kg IV methylprednisolone before the OKT3 is given and by 100 mg of hydrocortisone 30 minutes after the dose. All patients should have a chest X-ray within the 24 hours before treatment and weights should be evaluated to ensure less than 3% weight increase in the preceding week. With either an excessive weight gain or evidence of volume overload on chest X-ray, diuresis must be accomplished before proceeding with OKT3 treatment. Although patients need to be monitored with frequent vital signs during the first 48 hours, many centers use outpatient treatment after the third dose. The only absolute contraindication to OKT3 is known hypersensitivity to murine products. This is very uncommon.

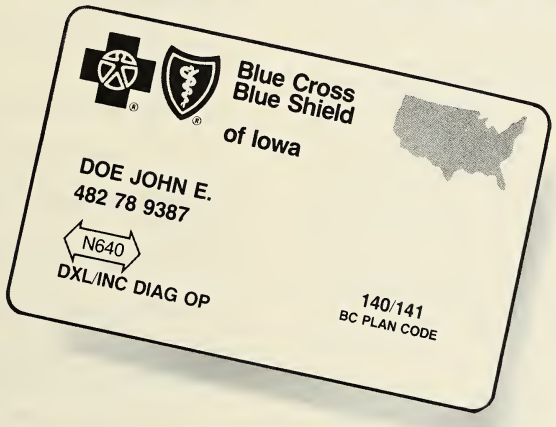
Conclusion

OKT3 is the first of a new class of monoclonal antibodies with therapeutic uses. It is currently the treatment of choice for steroid-resistant acute cellular rejection. The major limitation of the agent is that it can be used only 1 time in a given patient. Although this limitation is generic to the use of monoclonal antibodies, further studies investigating sequential treatment with different monoclonal antibodies having different antibody combining sites may enable repeated treatment with these agents reducing graft loss to acute rejection even further. — Cheryl Emmons, M.D. and L. G. Hunsicker, M.D., *Department of Internal Medicine.*

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The Chronic Renal Disease Program (CRDP) was established in 1972 by the Iowa General Assembly. Responsibility for program implementation and administration rests with the Iowa Department of Public Health. The purpose of the program is to provide financial assistance to eligible persons with end-stage renal disease who require dialysis or transplantation, but who are unable to pay for those services on a continuing basis.

The types of financial assistance that may be provided include: (1) Hospital and physician charges; (2) Home dialysis supply charges; (3) Hired home hemodialysis assistant fees; (4) Pharmaceuticals; (5) Travel to dialysis and transplant facilities; (6) Lodging for home dialysis and transplant patients in certain situations; and (7) Health insurance premiums.

As the CRDP is a last resort program, all other resources available to applicants must first be identified. Such resources include personal assets, private health insurance coverage, Medicare, etc. In July, 1973, Social Security extended Medicare coverage to dialysis and transplant patients regardless of age. The coverage is the same as for other Medicare recipients; Part A for inpatient charges and Part B for outpatient charges. Eligibility and the types of financial assistance that may be provided are based upon the applicant's medical status and the available resources for payment of their dialysis or transplant expenses.

Specific financial criteria are utilized to place each eligible applicant into 1 of 5 financial status categories using the 1985 Department of Health and Human Services Poverty Income Guidelines displayed in Table 1.

Table 2 displays the medical and financial status categories of the 403 eligible persons approved to receive assistance from the CRDP as November 1, 1986.

Individuals in category (1) have resources of less than 150% of the base amount and are eligible to receive the most assistance. Those in category (4) have resources 300% of the base amount or greater and receive the least assistance.

Transplantation and/or dialysis is being provided to Iowa CRDP recipients from the following facilities:

Bishop Clarkson Memorial Hospital, Omaha, Nebraska;
Blessing Hospital, Quincy, Illinois;
Covenant Medical Center, Waterloo, Iowa;
Dialysis Clinic, Inc., Columbia, Missouri;
Henry County Health Center, Mt. Pleasant, Iowa;
Iowa Lutheran Hospital, Des Moines, Iowa;
Kidney Care, PC, Des Moines, Iowa;
LaCrosse Lutheran Hospital, LaCrosse, Wisconsin;
Marian Health Center, Sioux City, Iowa;
Mary Greeley Medical Center, Ames, Iowa;
Mayo Clinic, Rochester, Minnesota;
Mercy Hospital, Cedar Rapids, Iowa;

(Please turn to page 86)

This information on public matters is furnished and sponsored by the Iowa Department of Public Health.

STATE DEPARTMENT OF PUBLIC HEALTH

(Continued from page 85)

Mercy Hospital Medical Center, Des Moines, Iowa;
Naeve Hospital, Albert Lea, Minnesota;
Quad Cities Renal Center, Moline, Illinois;
Regional Kidney Disease Program, Minneapolis, Minnesota;
St. Joseph Hospital, Omaha, Nebraska;
St. Luke's Hospital, Davenport, Iowa;
St. Luke's Hospital, Kansas City, Missouri;
Sioux Valley Hospital, Sioux Falls, South Dakota;
Trinity Regional Hospital, Fort Dodge, Iowa;
Tri-State Dialysis Unit, Dubuque, Iowa;
University of Iowa Hospitals and Clinics, Iowa City, Iowa;
University of Minnesota Hospital, Minneapolis, Minnesota;
University of Wisconsin Hospital, Madison, Wisconsin;
Veterans Administration Hospital, Iowa City, Iowa;
Veterans Administration Hospital, Omaha, Nebraska; and Worthington Regional Hospital, Worthington, Minnesota.

A thirteen member Renal Disease Advisory Committee advises the Department on the administration of the Chronic Renal Disease Program. The current members and their area of representation are as follows:

William Barclay, Social Security Administration;
William Deets, Non-renal Hospital Administrator;
Paul Dieke, End-Stage Renal Disease Network #8;
William Dyar, National Kidney Foundation of Iowa;
Margery Fearing, RN, Nephrology Nurses;
C.T. Flynn, MD, Medical Profession;
Ruth Holliday, Renal Social Worker;

TABLE 1

1985 DEPARTMENT OF HEALTH AND HUMAN SERVICES
POVERTY INCOME GUIDELINES (BASE)*
CHRONIC RENAL DISEASE PROGRAM FINANCIAL STATUS CATEGORIES

# in Family	(A) Medical Assistance	(1) To 150% of Base	(2) To 200% of Base	(3) To 250% of Base	(4) To 300% of Base
1	Persons	$0 - $ 7,874	$ 7,875 - $10,499	$10,500 - $13,124	$13,125 - $15,749
2	receiving	0 - 10,574	10,575 - 14,099	14,100 - 17,624	17,625 - 21,149
3	Medical	0 - 13,274	13,275 - 17,699	17,700 - 22,124	22,125 - 26,549
4	Assistance	0 - 15,974	15,975 - 21,299	21,300 - 26,624	26,625 - 31,949
5	(Title XIX)	0 - 18,674	18,675 - 24,899	24,900 - 31,124	31,125 - 37,349
6		0 - 21,374	21,375 - 28,499	28,500 - 35,624	35,625 - 42,729
7		0 - 24,074	24,075 - 32,099	32,100 - 40,124	40,125 - 48,149
8		0 - 26,774	26,775 - 35,699	35,700 - 44,624	44,625 - 53,549
For each additional family member increase by:		$2,700	$3,600	$4,500	$5,400

*Base — Poverty Income Guidelines

# in Family	Amount
1	$ 5,250
2	7,050
3	8,850
4	10,650
5	12,450
6	14,250
7	16,050
8	17,850

Increase by $1,800 for each additional family member.

TABLE 2

MEDICAL AND FINANCIAL STATUS CATEGORIES

	(A) Those receiving Medical Assistance	(1) 150% af Base	(2) 200% af Base	(3) 250% af Base	(4) 300% of Base	Total
Outpatient hemadialysis	74	58	46	14	4	196
Outpatient peritaneal dialysis	0	0	0	0	0	0
Hame hemadialysis	2	8	4	3	0	17
Home peritaneal dialysis	0	0	0	2	0	2
Cantinuaus ambulatory peritoneal dialysis	17	27	10	7	3	64
Transplant	26	62	21	10	5	124
Tatal	119	155	81	36	12	403

Kevin Howe, Iowa Department of Commerce, Insurance Division;
John May, MD, Medical Intermediary;
Maynard Meservey, MD, (retired), Consumer;
William Robb, MD, Medical Profession; and
John Van Vliet, Consumer.

For more specific information call (515) 281-4960 or write: Chronic Renal Disease Program, Iowa Department of Public Health, Lucas State Office Building, Des Moines, Iowa 50319-0075.

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OUR MAN IN EDUCATION

(Continued from page 76)

ways tough, especially in a large institution where such decisions are cherished as a collective faculty responsibility. And the instruction of resident physicians lies totally in the hands of the departments and their relationships with their respective national residency review committees, professional societies and certifying boards.

The pace of change in practice management these days is enormous. I hope you still remember opsimathy. It has to be one of the few and major resources for coping. (I wish I knew how to teach it directly, although even if I could, I suspect I'd have few enrollees. Maybe I'll have to teach it in some less usual way. Perhaps by writing about it in this column.) At any rate, if you're not already an opsimath, I hope you might be able to become one. Dinosaurs, when they became extinct, were "replaced" by small mammals. Maybe that was a good thing in a way. Can you imagine what it would be like to conduct biomedical research on dinosaurs?

December 1986 Morbidity Report

Disease	Dec. 1986 Total	1986 to Date	1985 to Date	Most Dec. Cases Reported From These Counties
Aids	2	21	14	Not Provided
Amebiasis	2	53	58	Johnson
Brucellasis	0	1	5	
Chickenpox	641	7711	6388	Scattered
Campylobacter	19	368	311	Scattered
Cytamegalovirus	1	20	15	Polk
Eatans Agent Infection	22	47	10	Sattered
Encephalitis, viral	3	29	30	Linn, Webster
Erythema Infectiasum	22	296	294	Scattered
Gastraenteritis (GIV)	3329	19257	15977	Scattered
Giardiasis	17	393	517	Scattered
Hepatitis, A	6	45	55	Henry, Pattawattamie, Scatt, Warren, Waadbury
Hepatitis, B	12	94	92	Scattered
Hepatitis, Nan A-B	2	28	17	Des Maines, Scatt
Hepatitis type unspecified	0	1	8	
Herpes Simplex	135	1336	1210	Scattered
Herpes Zaster	0	0	0	
Histaplasmasis	3	22	19	Emmet, Palk
Infectiaus mananucleasis	13	250	193	Scattered
Influenza, lab confirmed	14	250	170	
Influenza-like illness (URI)	6087	86936	37723	
Legianellasis	1	15	13	Cerra Garda
Malaria	0	1	3	
Meningitis aseptic	4	61	59	Linn, Palk, Waadbury
bacterial	11	90	137	Scattered
meningacaccal	0	11	9	
Mumps	39	87	19	Scattered
Pertussis	0	19	34	
Rabies in animals	15	192	148	Scattered
Reye Syndrame	0	0	4	
Rheumatic Fever	0	6	4	
Rubella (German measles)	0	1	1	
Measles	0	134	0	
Salmanellasis	6	285	266	Scattered
Shigellasis	2	23	19	Cherakee, Waadbury
Taxic Shack Syndrame	0	8	9	
Tuberculasis				
tatal ill	1	47	58	Buena Vista
bact. pas.	1	44	54	Buena Vista
Typhaid Fever	0	1	3	
Venereal diseases:				
Ganarrhea	346	3949	4259	Scattered
Chlamydia	296	2810	26	Scattered
Syphilis	1	10	19	Palk

Other Non-Repartable Diseases: Ureaplasma urealyticum — 1, Henry; 1, Keakuk; 4, Jahnsan.



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News About Colleagues

ABOUT IOWA PHYSICIANS

Dr. John DePriest recently began family practice in Donnellson. Dr. DePriest received the M.D. degree at the University of Nebraska College of Medicine in Omaha; and completed his family practice residency at Kern County Medical Center in Bakersfield, California. Prior to locating in Donnellson, Dr. DePriest was associated with Wolpert & Wolpert General Surgical Group in Sioux City. . . . **Dr. William Sickels** has joined the Marshalltown Medical and Surgical Center. Dr. Sickels received the M.D. degree and served his radiology residency at the U. of I. College of Medicine and University of Iowa Hospitals and Clinics. Prior to locating in Marshalltown, he served a one-year fellowship in magnetic resonance imaging in Harbor-UCLA in Torance, California. . . . **Dr. Johnathan C. Lindo** recently began family practice in Monticello. Dr. Lindo received the M.D. degree at Far Eastern University in the Philippines. He came to the United States in 1972 and took postgraduate work at St. Luke's Hospital and Mercy Hospital in Cedar Rapids. Prior to locating in Monticello, Dr. Lindo was in private practice in Monmouth, Illinois and the Philippines. . . .

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Before prescribing, see complete prescribing information in SK&F CO. literature or *PDR*. The following is a brief summary.

* **WARNING**

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

Warnings: Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K^+ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K^+ intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of triamterene and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Angiotensin-converting enzyme (ACE) inhibitors can elevate serum potassium; use with caution with 'Dyazide'. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin [ACTH]). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function. Thiazides may add to or potentiate the action of other antihypertensive drugs. Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

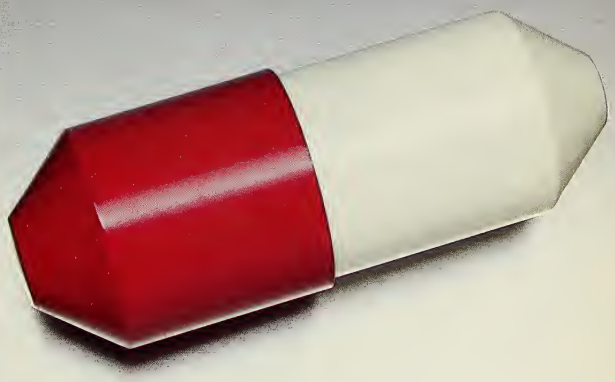
Supplied: 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

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PREMARIN used alone does not adversely affect lipid levels. In fact, a clinical study has shown a significant increase in HDL cholesterol—from 49.7 mg/dL to 56.4 mg/dL—and decrease in LDL cholesterol—from 165.1 mg/dL to 138.1 mg/dL—after one year of therapy with PREMARIN, 0.625 mg.[5]

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PREMARIN effectively relieves vasomotor symptoms, such as hot flashes. When estrogen deficiency is limited to atrophic vaginitis, PREMARIN® (conjugated estrogens) Vaginal Cream restores the vaginal environment to its premenopausal state.

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Most trusted for more reasons

*PREMARIN is indicated for moderate-to-severe vasomotor symptoms.

Please see following page for brief summary of prescribing information.

For moderate-to-severe vasomotor symptoms

PREMARIN®
(Conjugated Estrogens Tablets)



0.3 mg 0.625 mg 0.9 mg 1.25 mg 2.5 mg

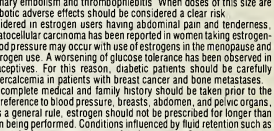
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For atrophic vaginitis

PREMARIN®
(Conjugated Estrogens)

Vaginal Cream

0.625mg/g



BRIEF SUMMARY *(FOR FULL PRESCRIBING INFORMATION AND PATIENT INFORMATION, SEE PACKAGE CIRCULARS.)*

PREMARIN® Brand of conjugated estrogens tablets, USP
PREMARIN® Brand of conjugated estrogens Vaginal Cream in a nonliquefying base

1. ESTROGENS HAVE BEEN REPORTED TO INCREASE THE RISK OF ENDOMETRIAL CARCINOMA.

Three independent case control studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens for more than one year. This risk was independent of the other known risk factors for endometrial cancer. These studies are further supported by the finding that incidence rates of endometrial cancer have increased sharply since 1969 in eight different areas of the United States with population-based cancer reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade. The three case control studies reported that the risk of endometrial cancer in estrogen users was about 4.5 to 13.9 times greater than in nonusers. The risk appears to depend on both duration of treatment and on estrogen dose. In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible. When prolonged treatment is medically indicated, the patient should be reassessed on at least a semiannual basis to determine the need for continued therapy. Although the evidence must be considered preliminary, one study suggests that cyclic administration of low doses of estrogen may carry less risk than continuous administration; it therefore appears prudent to utilize such a regimen. Close clinical surveillance of all women taking estrogens is important. In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding, adequate diagnostic measures should be undertaken to rule out malignancy. There is no evidence at present that "natural" estrogens are more or less hazardous than "synthetic" estrogens at equiestrogenic doses.

2. ESTROGENS SHOULD NOT BE USED DURING PREGNANCY.

The use of female sex hormones, both estrogens and progestogens, during early pregnancy may seriously damage the offspring. It has been shown that females exposed in utero to diethylstilbestrol, a non-steroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated as not greater than 4 per 1,000 exposures. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have vaginal adenosis, epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are precursors of malignancy. Although similar data are not available with the use of other estrogens, it cannot be presumed they would not induce similar changes. Several reports suggest an association between intrauterine exposure to female sex hormones and congenital anomalies, including congenital heart defects and limb reduction defects. One case control study estimated a 4.7-fold increased risk of limb reduction defects in infants exposed in utero to sex hormones (oral contraceptives, hormone withdrawal tests for pregnancy, or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb reduction defects in exposed fetuses is somewhat less than 1 per 1,000. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well controlled studies that progestogens are effective for these uses. If PREMARIN is used during pregnancy, or if the patient becomes pregnant while taking this drug, she should be apprised of the potential risks to the fetus, and the advisability of pregnancy continuation.

DESCRIPTION: PREMARIN (conjugated estrogens, USP) contains a mixture of estrogens, obtained exclusively from natural sources, blended to represent the average composition of materials derived from pregnant mares' urine. It contains estrone, equilin, and 17α-dihydroequilin, together with smaller amounts of 17α-estradiol, equilenin, and 17α-dihydroequilenin as salts of their sulfate esters. Tablets are available in 0.3 mg, 0.625 mg, 0.9 mg, 1.25 mg, and 2.5 mg strengths of conjugated estrogens. Cream is available as 0.625 mg conjugated estrogens per gram.

INDICATIONS AND USAGE: PREMARIN (conjugated estrogens tablets, USP): Moderate-to-severe *vasomotor* symptoms associated with the menopause. (There is no evidence that estrogens are effective for nervous symptoms or depression without associated vasomotor symptoms and they should not be used to treat such conditions.) **Osteoporosis (abnormally low bone mass).** Atrophic vaginitis. Kraurosis vulvae. Female castration.

PREMARIN (conjugated estrogens) Vaginal Cream is indicated in the treatment of atrophic vaginitis and kraurosis vulvae. PREMARIN HAS NOT BEEN SHOWN TO BE EFFECTIVE FOR ANY PURPOSE DURING PREGNANCY AND ITS USE MAY CAUSE SEVERE HARM TO THE FETUS (SEE BOXED WARNING).

Concomitant Progestin Use: The lowest effective dose appropriate for the specific indication should be utilized. Studies of the addition of a progestin for 7 or more days of a cycle of estrogen administration have reported a lowered incidence of endometrial hyperplasia. Morphological and biochemical studies of the endometrium suggest that 10 to 13 days of progestin are needed to provide maximal maturation of the endometrium and to eliminate any hyperplastic changes. Whether this will provide protection from endometrial carcinoma has not been clearly established. There are possible additional risks which may be associated with the inclusion of progestin in estrogen replacement regimens. (See PRECAUTIONS.) The choice of progestin and dosage may be important; product labeling should be reviewed to minimize possible adverse effects.

CONTRAINDICATIONS: Estrogens should not be used in women (or men) with any of the following conditions: 1. Known or suspected cancer of the breast except in appropriately selected patients being treated for metastatic disease. 2. Known or suspected estrogen-dependent neoplasia. 3. Known or suspected pregnancy (See Boxed Warning). 4. Undiagnosed abnormal genital bleeding. 5. Active thrombophlebitis or thromboembolic disorders. 6. A past history of thrombophlebitis, thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast or prostatic malignancy).

WARNINGS: Long-term continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina, and liver. There are now reports that estrogens increase the risk of carcinoma of the endometrium in humans. (See Boxed Warning.) At the present time there is no satisfactory evidence that estrogens given to postmenopausal women increase the risk of cancer of the breast, although a recent study has raised this possibility. There is a need for caution in prescribing estrogens for women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms. A recent study has reported a 2- to 3-fold increase in the risk of surgically confirmed gallbladder disease in women receiving postmenopausal estrogens.

Adverse effects of oral contraceptives may be expected at the larger doses of estrogen used to treat prostatic or breast cancer or postpartum breast engorgement; it has been shown that there is an increased risk of thrombosis in men receiving estrogens for prostatic cancer and women for postpartum breast engorgement. Users of oral contraceptives have an increased risk of diseases, such as thrombophlebitis, pulmonary embolism, stroke, and myocardial infarction. Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users. An increased risk of postsurgery thromboembolic complications has also been reported in users of oral contraceptives. If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism, or during periods of prolonged immobilization. Estrogens should not be used in persons with active thrombophlebitis, thromboembolic disorders, or in persons with a history of such disorders in association with estrogen use. They should be used with caution in patients with cerebral vascular or coronary artery disease. Large doses (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast, have been shown to increase the risk of nonfatal myocardial infarction, pulmonary embolism and thrombophlebitis. When doses of this size are used, any of the thromboembolic and thrombotic adverse effects should be considered a clear risk.

Benign hepatic adenomas should be considered in estrogen users having abdominal pain and tenderness, abdominal mass, or hypovolemic shock. Hepatocellular carcinoma has been reported in women taking estrogen-containing oral contraceptives. Increased blood pressure may occur with use of estrogens in the menopause and blood pressure should be monitored with estrogen use. A worsening of glucose tolerance has been observed in patients on estrogen-containing oral contraceptives. For this reason, diabetic patients should be carefully observed. Estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases.

PRECAUTIONS: Physical examination and a complete medical and family history should be taken prior to the initiation of any estrogen therapy with special reference to blood pressure, breasts, abdomen, and pelvic organs, and should include a Papanicolaou smear. As a general rule, estrogen should not be prescribed for longer than one year without another physical examination being performed. Conditions influenced by fluid retention such as asthma, epilepsy, migraine, and cardiac or renal dysfunction, require careful observation. Certain patients may develop manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding, mastodynia, etc. Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients. Oral contraceptives appear to be associated with an increased incidence of mental depression. Patients with a history of depression should be carefully observed. Preexisting uterine leiomyomata may increase in size during estrogen use. The pathologist should be advised of estrogen therapy when relevant specimens are submitted. If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated. Estrogens should be used with care in patients with impaired liver function, renal insufficiency, metabolic bone diseases associated with hypercalcemia, or in young patients in whom bone growth is not complete. If concomitant progestin therapy is used, potential risks may include adverse effects on carbohydrate and lipid metabolism.

The following changes may be expected with larger doses of estrogen:

a. Increased sulfobromophthalein retention.

b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability.

c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by PBI, T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered.

d. Impaired glucose tolerance.

e. Decreased pregnanediol excretion.

f. Reduced response to metyrapone test.

g. Reduced serum folate concentration.

h. Increased serum triglyceride and phospholipid concentration. As a general principle, the administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk.

ADVERSE REACTIONS: The following have been reported with estrogenic therapy, including oral contraceptives: breakthrough bleeding, spotting, change in menstrual flow; dysmenorrhea; premenstrual-like syndrome; amenorrhea during and after treatment; increase in size of uterine fibromyomata; vaginal candidiasis, change in cervical erosion and in degree of cervical secretion; cystitis-like syndrome; tenderness, enlargement, secretion (of breasts); nausea, vomiting, abdominal cramps, bloating; cholestatic jaundice; chloasma or melasma which may persist when drug is discontinued; erythema multiforme; erythema nodosum; hemorrhagic eruption; loss of scalp hair; hirsutism; steepening of corneal curvature; intolerance to contact lenses; headache, migraine, dizziness, mental depression, chorea; increase or decrease in weight; reduced carbohydrate tolerance; aggravation of porphyria; edema; changes in libido.

ACUTE OVERDOSAGE: May cause nausea, and withdrawal bleeding may occur in females.

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1. *Given cyclically for short-term use only.* For treatment of moderate to severe *vasomotor* symptoms, atrophic vaginitis, or kraurosis vulvae associated with the menopause (0.3 to 1.25 mg or more daily). The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible. Administration should be cyclic (eg, three weeks on and one week off). Attempts to discontinue or taper medication should be made at three- to six-month intervals.

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Patients with an intact uterus should be monitored for signs of endometrial cancer and appropriate measures taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

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The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible.

Administration should be cyclic (eg, three weeks on and one week off).

Attempts to discontinue or taper medication should be made at three-to-six month intervals.

Usual dosage range: 2 to 4 g daily, intravaginally, depending on the severity of the condition.

Treated patients with an intact uterus should be monitored closely for signs of endometrial cancer and appropriate diagnostic measures should be taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

References:

1. Whitehead MI, Townsend PT, Pryse-Davies J, et al: Effects of estrogens and progestins on the biochemistry and morphology of the postmenopausal endometrium. *N Engl J Med* 1981;305:1599-1605. 2. Paterson MEL, Wade-Evans T, Sturdee DW, et al: Endometrial disease after treatment with oestrogens and progestogens in the climacteric. *Br Med J* 1980;280:822-824. 3. Magos AL, Brincat M, Studd JWW, et al: Amenorrhea and endometrial atrophy with continuous oral estrogen and progestogen therapy in postmenopausal women. *Obstet Gynecol* 1985; 67: 496-499. 4. Whitehead MI, Lane G, Siddle N, et al: Avoidance of endometrial hyperstimulation in estrogen-treated postmenopausal women. *Semin Reprod Endocrinol* 1983;1:1;41-52. 5. Barnes RB, Roy S, Lobo RA: Comparison of lipid and androgen levels after conjugated estrogen or depo-medroxyprogesterone acetate treatment in postmenopausal women. *Obstet Gynecol* 1985;66:216-219.

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Dr. Debra S. Suda has opened an office in Coralville for the practice of psychiatry. Dr. Suda received the M.D. degree at the U. of I. College of Medicine and served her psychiatry residency at University of Iowa Hospitals and Clinics. . . . **Dr. Paul E. Johnson** has joined Siouxland Surgical Associates, P.C. in Sioux City. Dr. Johnson received the M.D. degree at Creighton University School of Medicine in Omaha and served his surgery residency at St. Joseph Hospital in Omaha and Veterans Hospital in Des Moines.

Dr. Erin Herndon has assumed the medical practice of Dr. Mary Lyons and Dr. John Uchiyama at Beaverdale Internal Medicine, P.C. in Des Moines. Dr. Herndon received the M.D. degree at the U. of I. College of Medicine and served her internal medicine residency at Iowa Methodist Medical Center in Des Moines. . . . **Dr. Azher B. Uddin** has joined Marshalltown Pediatric Associates. Dr. Uddin received the M.D. degree at Mysore Medical College in India. Her first year pediatric residency was at Morristown Memorial Hospital in New Jersey; second year at Monmouth Medical Center in New Jersey and third year at Baltimore City Hospital and John Hopkins in Baltimore, Maryland. . . . **Dr. Loran E. Coppoc,** Ottumwa, retired from medical practice in September. Dr. Coppoc received the M.D. degree; and completed his surgery residency at the University of Nebraska School of Medicine. He began his medical practice in Ottumwa in 1951. A trainer of Morgan horses, Dr. Coppoc was named to the Saddlehorse Hall of Fame at the Iowa State Fair in 1982. . . . **Dr. John S. Downing,** longtime Cedar Rapids pediatrician, recently retired from his teaching position at the Family Practice Center in Cedar Rapids. Dr. Downing received the M.D. degree at the U. of I.; interned at Akron, Ohio; and served his pediatric residency at University Hospitals in Iowa City. Prior to teaching at the Family Practice Center, Dr. Downing was in private practice in Cedar Rapids.

(Please turn to page 92)



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Dr. Mark E. Thoman, Des Moines, is one of 11 individuals invited to chair a special session of the World Federation of Clinical Toxicology Centers under the auspices of the Commission of European Committees and International Program of Clinical Safety of the World Health Organization (WHO). The WHO meeting occurred in October in Geneva, Switzerland. Dr. Thoman will also represent the United States in special sessions of the World Federation of Clinical Toxicology in Brussells, Belgium.

Four physicians have joined the Burlington Medical Center. They are **Dr. William C. Vincent; Dr. Jonathon W. Snow, Jr.; Dr. Margaret A. Kopchick;** and **Dr. Steven Rosebrock.** Dr. Vincent received the M.D. degree at the University of Minnesota College of Medicine and served his surgery residency at Iowa Methodist Medical Center in Des Moines. Dr. Snow received the M.D. degree at the University of Utah School of Medicine and completed his pathology residency at University of Iowa Hospitals and Clinics in Iowa City. Dr. Kopchick received the M.D. degree at the University of Michigan College of Medicine and completed her dermatology residency at William Beaumont Hospital in Detroit. Dr. Rosebrock received the M.D. degree at Northwestern University School of Medicine and completed his family practice residency at the University of Nebraska School of Medicine in Omaha. . . . **Dr. Jerry Van Es** has joined the Sioux Center Medical Clinic. Dr. Van Es received the M.D. degree at the U. of I. College of Medicine and served his family practice residency at Sioux Falls, South Dakota.

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Dr. Tom Evans and **Dr. Tim Gutshall** have opened Family Associates, a general practice clinic, at the Iowa Methodist Health Centre in Des Moines. Both physicians received the M.D. degree at the U. of I. College of Medicine. Dr. Evans served his family practice residency at Broadlawns Medical Center in Des Moines and Dr. Gutshall served his family practice residency at North Carolina Baptist Hospital in Winston-Salem, North Carolina. . . . **Dr. David C. Wenger-Keller** has opened a family practice in Fort Madison. Dr. Wenger-Keller received the M.D. degree and served his family practice residency at the Medical College of Ohio in Toledo.

Dr. Charles W. Maplethorpe, Toledo, was the guest speaker at a meeting of the Marshalltown Business and Professional Women. Dr. Maplethorpe's topic, "Practice of Medicine — Yesterday and Today." **Dr. Ronald S. Lankford,** Des Moines, has been named medical director of the Share Development Corporation. Dr. Lankford, one of the founding members of the Share Health Plan of Iowa, will relocate in Minneapolis. . . . **Dr. Ray Webster** has been named director of occupational medicine at Iowa Methodist Medical Center in Des Moines. Dr. Webster will coordinate various programs for area businesses.

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A Monthly Commentary

IN THE PUBLIC INTEREST

Marketing — A Myriad of Approaches

TO THE DISMAY OF MANY, marketing and promotion have become necessary evils in today's competitive medical world. There are as many approaches to marketing as there are hospitals, clinics and medical practices.

Here's a look at how 3 Iowa clinics get their message heard in their communities. . . .

A 'Subtle' Approach

"We're probably a little behind other areas in the state in marketing and we'd like to keep the secret," jokes Mary Bechler, who handles public relations for Northwest Iowa Orthopedics, P.C. in Sioux City.

The clinic shuns paid advertising in favor of what Bechler calls a "subtle" approach. This includes sending packets of information to new patients, conducting out-of-town clinics, receptions for new doctors and press releases to local media.

"Our biggest marketing advantages are that we offer full service insurance and participate with Medicare," Bechler says, stressing her goal is satisfied doctors and patients.

"There's something about television ads — I hate to see that come. We're not going to sit back and let everyone do it but us, but we won't be the leaders."

Press of Competition

"In a competitive environment, advertising and promotion do make a difference. Patient numbers show it," comments Ellen Whinery, Director of Patient Care for McFarland Clinic in Ames.

McFarland's primary marketing tools are newspaper and radio ads and direct mail.The clinic hasn't done television or outdoor advertising, but Whinery isn't ruling it out in the future. She works with a Des Moines ad agency to determine where marketing dollars can be spent most effectively.

"We get the most dramatic response with direct mail to a specific type of patient promoting our various programs," she reveals. "The thing I've really noticed is you have to develop a 'look' — a mark of identity that people recognize."

Whinery says she has taken a "more active stance" in the local chamber of commerce and is planning a clinic newsletter.

"Here, we feel the press of competition from Des Moines hospitals that advertise a lot," she concludes. "Even in a small town, you can't assume everyone knows you're here."

It's 'Patient Education'

"Our most effective marketing tool is our quarterly newsletter. It's gotten a very positive response from patients. Some of them say they wait for it to arrive," states Roger Greenwald, administrator for Medical Associates in Clinton.

The newsletter is published at the clinic and contains patient-education articles written by clinic physicians.

The clinic occasionally buys television and radio spots, but only if the programming is health-related. Medical Associates has a standing newspaper ad on its weekly free blood-pressure screening.

"We usually get 4 or 5 people who have never been in the clinic before. Hopefully, they come back if they need a physician. I feel marketing is really patient education. What we're doing is not the extreme, it's just good medical practice."

PRESIDENT'S PRIVILEGE



1987 SCIENTIFIC SESSION — JOIN US!

THE MOST IMPORTANT event of the IMS program year is at hand. Physicians from across Iowa will gather April 3-5 at the Hotel Savery in Des Moines for the 1987 Scientific Session and House of Delegates.

Improving our communication skills — an issue I have emphasized during my term as IMS president — will dominate the Scientific Session program. Communicating with patients will be the topic on Friday, April 3. A panel discussion on communicating with the public will round out the Scientific Session on Sunday, April 5.

Between these 2 sessions will be other opportunities to hear experts address important topics such as patient education, what's new in medicine and risk management's link to quality care. A detailed Scientific Session program is included in this issue of IOWA MEDICINE. As the program demonstrates, this year's session is an excellent CME opportunity for IMS members.

At sessions Saturday and Sunday morning, April 4-5, the House of Delegates will consider resolutions brought before it, elect officers and determine IMS policy on significant health care issues. Special guest speaker will be William Hotchkiss, M.D., president-elect of the American Medical Association.

I thank the many Iowa physicians who will participate in these important activities. These physicians help make the IMS a vital and well-respected organization. I urge all IMS members to consider joining us April 3-5. It will be time well spent.

L. D. Caraway, M.D.

L. Dean Caraway, M.D.
President

IOWA METHODIST MEDICAL CENTER
THROCKMORTON SURGICAL SOCIETY
SPRING MEETING

Topic: Trauma
Date: Friday, April 10, 1987
Place: Jester Auditorium, Iowa Methodist Medical Center, Des Moines, Iowa

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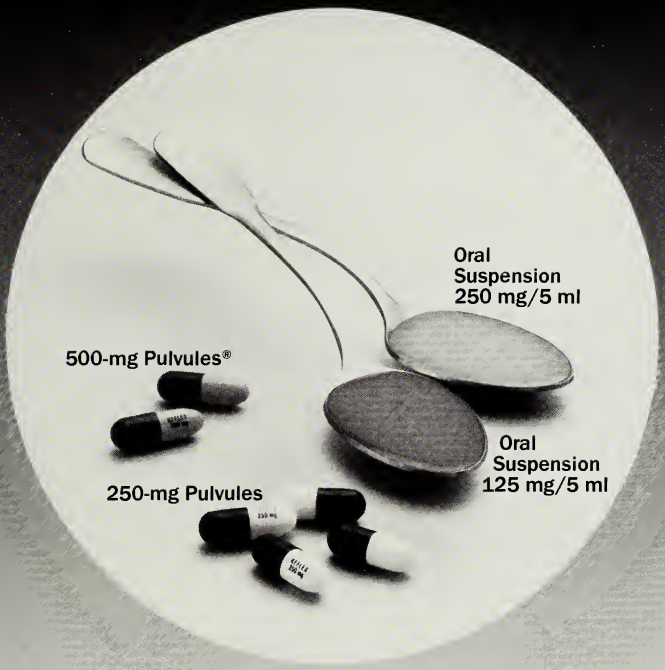
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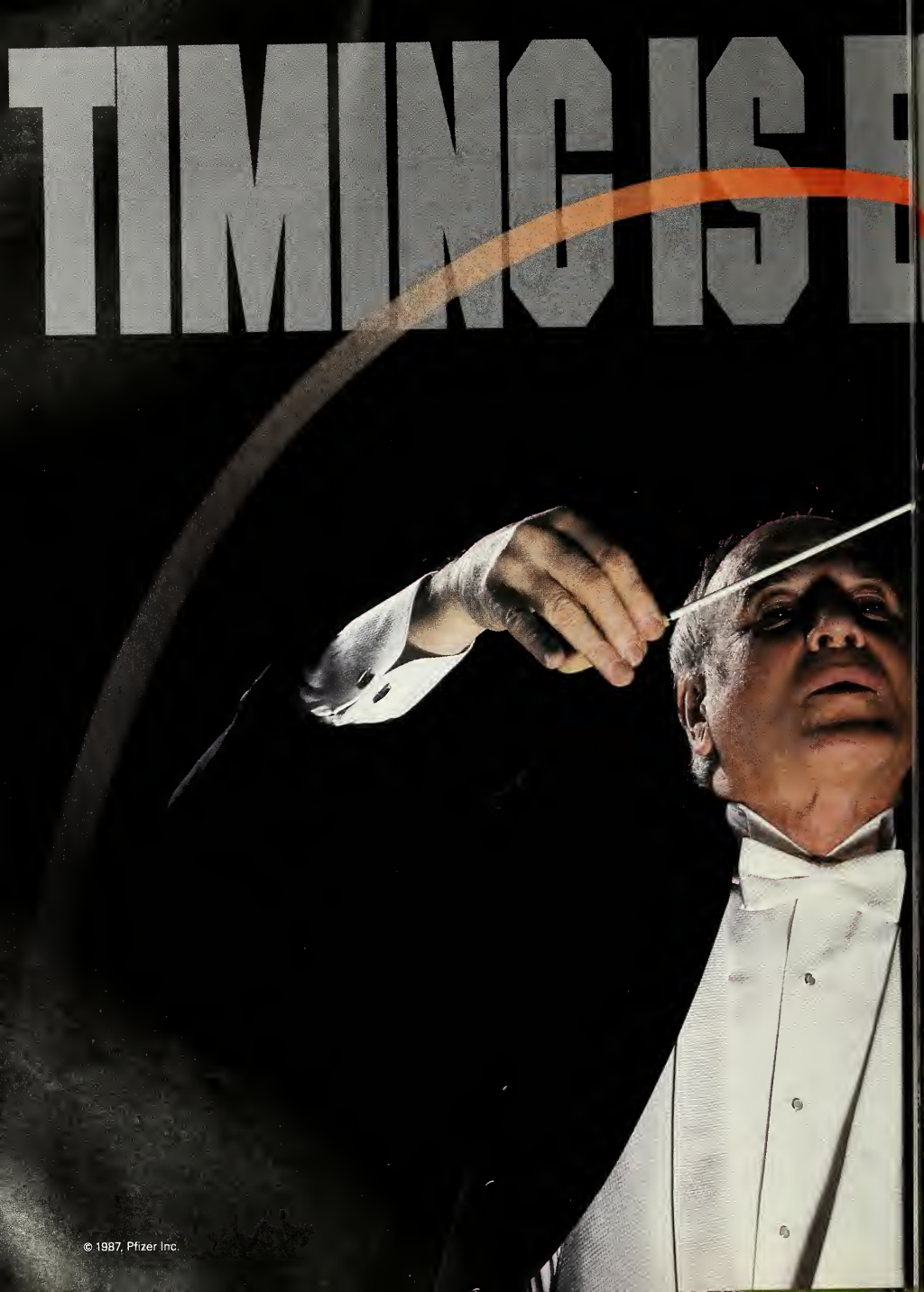


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(glipizide) 5-mg and 10-mg Scored Tablets



SYNCHRONIZED SULFONYLUREA THERAPY

Please see brief summary of Glucotrol® (glipizide) prescribing information on next page.

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Reference:
1. Sachs R, Frank M, Fishman SK: Overview of clinical experience with glipizide. In *Glipizide. A Worldwide Review*. Princeton, NJ, Excerpta Medica, 1984, pp 163-172.

GLUCOTROL® (glipizide) Tablets

Brief Summary of Prescribing Information

INDICATIONS AND USAGE: GLUCOTROL is indicated as an adjunct to diet for the control of hyperglycemia in patients with non-insulin-dependent diabetes mellitus (NIDDM, type II) after an adequate trial of dietary therapy has proved unsatisfactory.

CONTRAINDICATIONS: GLUCOTROL is contraindicated in patients with known hypersensitivity to the drug or with diabetic ketoacidosis, with or without coma, which should be treated with insulin.

SPECIAL WARNING ON INCREASED RISK OF CARDIOVASCULAR MORTALITY: **The administration of oral hypoglycemic drugs has been reported to be associated with increased cardiovascular mortality as compared to treatment with diet alone or diet plus insulin. This warning is based on the study conducted by the University Group Diabetes Program (UGDP), a long-term prospective clinical trial designed to evaluate the effectiveness of glucose-lowering drugs in preventing or delaying vascular complications in patients with non-insulin-dependent diabetes. The study involved 823 patients who were randomly assigned to one of four treatment groups (*Diabetes*, 19, supp. 2:747-830, 1970).**

UGDP reported that patients treated for 5 to 8 years with diet plus a fixed dose of tolbutamide (1.5 grams per day) had a rate of cardiovascular mortality approximately 2-1/2 times that of patients treated with diet alone. A significant increase in total mortality was not observed, but the use of tolbutamide was discontinued based on the increase in cardiovascular mortality, thus limiting the opportunity for the study to show an increase in overall mortality. Despite controversy regarding the interpretation of these results, the findings of the UGDP study provide an adequate basis for this warning. The patient should be informed of the potential risks and advantages of GLUCOTROL and of alternative modes of therapy.

Although only one drug in the sulfonylurea class (tolbutamide) was included in this study, it is prudent from a safety standpoint to consider that this warning may also apply to other oral hypoglycemic drugs in this class, in view of their close similarities in mode of action and chemical structure.

PRECAUTIONS: **Renal and Hepatic Disease**: The metabolism and excretion of GLUCOTROL may be slowed in patients with impaired renal and/or hepatic function. Hypoglycemia may be prolonged in such patients should it occur.

Hypoglycemia: All sulfonylureas are capable of producing severe hypoglycemia. Proper patient selection, dosage, and instructions are important to avoid hypoglycemia. Renal or hepatic insufficiency may increase the risk of hypoglycemic reactions. Elderly, debilitated or malnourished patients and those with adrenal or pituitary insufficiency are particularly susceptible to the hypoglycemic action of glucose-lowering drugs. Hypoglycemia may be difficult to recognize in the elderly or people taking beta-adrenergic blocking drugs. Hypoglycemia is more likely to occur when caloric intake is deficient, after severe or prolonged exercise, when alcohol is ingested, or when more than one glucose-lowering drug is used.

Loss of Control of Blood Glucose: A loss of control may occur in diabetic patients exposed to stress such as fever, trauma, infection or surgery. It may then be necessary to discontinue GLUCOTROL and administer insulin.

Laboratory Tests: Blood and urine glucose should be monitored periodically. Measurement of glycosylated hemoglobin may be useful.

Information for Patients: Patients should be informed of the potential risks and advantages of GLUCOTROL, of alternative modes of therapy, as well as the importance of adhering to dietary instructions, of a regular exercise program, and of regular testing of urine and/or blood glucose. The risks of hypoglycemia, its symptoms and treatment, and conditions that predispose to its development should be explained to patients and responsible family members. Primary and secondary failure should also be explained.

Drug Interactions: The hypoglycemic action of sulfonylureas may be potentiated by certain drugs including nonsteroidal anti-inflammatory agents and other drugs that are highly protein bound, salicylates, sulfonamides, chloramphenicol, probenecid, coumarins, monoamine oxidase inhibitors, and beta adrenergic blocking agents. *In vitro* studies indicate that GLUCOTROL binds differently than tolbutamide and does not interact with salicylate or dicumarol. However, caution must be exercised in extrapolating these findings to a clinical situation. Certain drugs tend to produce hyperglycemia and may lead to loss of control, including the thiazides and other diuretics, corticosteroids, phenothiazines, thyroid products, estrogens, oral contraceptives, phenytoin, nicotinic acid, sympathomimetics, calcium channel blocking drugs, and isoniazid. A potential interaction between oral miconazole and oral hypoglycemic agents leading to severe hypoglycemia has been reported. Whether this interaction also occurs with the intravenous, topical, or vaginal preparations of miconazole is not known.

Carcinogenesis, Mutagenesis, Impairment of Fertility: A 20-month study in rats and an 18-month study in mice at doses up to 75 times the maximum human dose revealed no evidence of drug-related carcinogenicity. Bacterial and *in vivo* mutagenicity tests were uniformly negative. Studies in rats of both sexes at doses up to 75 times the human dose showed no effects on fertility.

Pregnancy: Pregnancy Category C: GLUCOTROL (glipizide) was found to be mildly fetotoxic in rat reproductive studies at all dose levels (5-50 mg/kg). This fetotoxicity has been similarly noted with other sulfonylureas, such as tolbutamide and tolazamide. The effect is perinatal and believed to be directly related to the pharmacologic (hypoglycemic) action of GLUCOTROL. In studies in rats and rabbits no teratogenic effects were found. There are no adequate and well controlled studies in pregnant women. GLUCOTROL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Because recent information suggests that abnormal blood glucose levels during pregnancy are associated with a higher incidence of congenital abnormalities, many experts recommend that insulin be used during pregnancy to maintain blood glucose levels as close to normal as possible.

Nonteratogenic Effects: Prolonged severe hypoglycemia has been reported in neonates born to mothers who were receiving a sulfonylurea drug at the time of delivery. This has been reported more frequently with the use of agents with prolonged half-lives. GLUCOTROL should be discontinued at least one month before the expected delivery date.

Nursing Mothers: Since some sulfonylurea drugs are known to be excreted in human milk, insulin therapy should be considered if nursing is to be continued.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: In controlled studies, the frequency of serious adverse reactions reported was very low. Of 702 patients, 11.8% reported adverse reactions and in only 1.5% was GLUCOTROL discontinued.

Hypoglycemia: See PRECAUTIONS and OVERDOSAGE sections.

Gastrointestinal: Gastrointestinal disturbances, the most common, were reported with the following approximate incidence: nausea and diarrhea, one in 70; constipation and gastralgia, one in 100. They appear to be dose-related and may disappear on division or reduction of dosage. Cholestatic jaundice may occur rarely with sulfonylureas; GLUCOTROL should be discontinued if this occurs.

Dermatologic: Allergic skin reactions including erythema, morbilliform or maculopapular eruptions, urticaria, pruritus, and eczema have been reported in about one in 70 patients. These may be transient and may disappear despite continued use of GLUCOTROL. If skin reactions persist, the drug should be discontinued. Porphyria cutanea tarda and photosensitivity reactions have been reported with sulfonylureas.

Hematologic: Leukopenia, agranulocytosis, thrombocytopenia, hemolytic anemia, aplastic anemia, and pancytopenia have been reported with sulfonylureas.

Metabolic: Hepatic porphyria and disulfiram-like alcohol reactions have been reported with sulfonylureas. Clinical experience to date has shown that GLUCOTROL has an extremely low incidence of disulfiram-like reactions.

Endocrine Reactions: Cases of hyponatremia and the syndrome of inappropriate antidiuretic hormone (SIADH) secretion have been reported with this and other sulfonylureas.

Miscellaneous: Dizziness, drowsiness, and headache have been reported in about one in fifty patients treated with GLUCOTROL. They are usually transient and seldom require discontinuance of therapy.

OVERDOSAGE: Overdosage of sulfonylureas including GLUCOTROL can produce hypoglycemia. If hypoglycemic coma is diagnosed or suspected, the patient should be given a rapid intravenous injection of concentrated (50%) glucose solution. This should be followed by a continuous infusion of a more dilute (10%) glucose solution at a rate that will maintain the blood glucose at a level above 100 mg/dL. Patients should be closely monitored for a minimum of 24 to 48 hours since hypoglycemia may recur after apparent clinical recovery. Clearance of GLUCOTROL from plasma would be prolonged in persons with liver disease. Because of the extensive protein binding of GLUCOTROL (glipizide), dialysis is unlikely to be of benefit.

DOSAGE AND ADMINISTRATION: There is no fixed dosage regimen for the management of diabetes mellitus with GLUCOTROL; in general, it should be given approximately 30 minutes before a meal to achieve the greatest reduction in postprandial hyperglycemia.

Initial Dose: The recommended starting dose is 5 mg before breakfast. Geriatric patients or those with liver disease may be started on 2.5 mg. Dosage adjustments should ordinarily be in increments of 2.5-5 mg, as determined by blood glucose response. At least several days should elapse between titration steps.

Maximum Dose: The maximum recommended total daily dose is 40 mg.

Maintenance: Some patients may be effectively controlled on a once-a-day regimen, while others show better response with divided dosing. Total daily doses above 15 mg should ordinarily be divided.

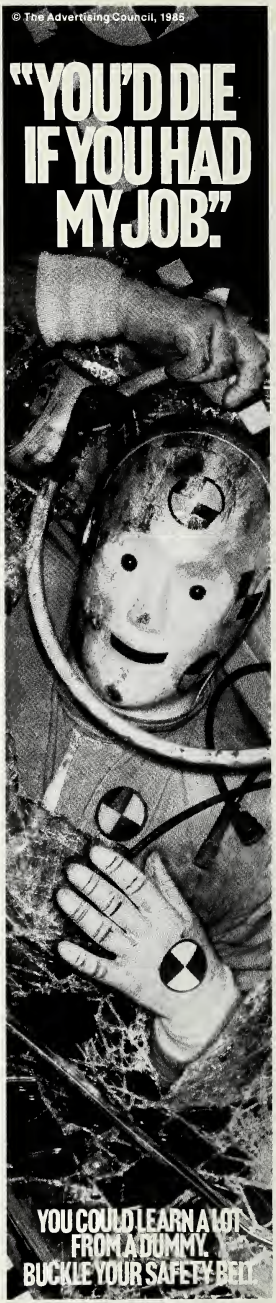
HOW SUPPLIED: GLUCOTROL is available as white, dye-free, scored diamond-shaped tablets imprinted as follows: 5 mg tablet—Pfizer 411 (NDC 5 mg 0049-4110-66) Bottles of 100, 10 mg tablet—Pfizer 412 (NDC 10 mg 0049-4120-65) Bottles of 100.

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More detailed professional information available on request.

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Medical Specialties — Changes and Challenges

RICHARD S. WILBUR, M.D.
Lake Forest, Illinois

In this era of health care destabilization, medical journals across America contain discussions of socioeconomic changes. This author explores another side of the issue — the effect of these changes on medical specialties and specialty societies.

THE 60 YEARS after the Flexner Report (1912) saw a revolution in American medical care. The science of medicine was altered by vitamins, antibiotics, immunization and the conquest of infectious disease. The focus of patient care was transferred from the home to the hospital. The post World War II Hill-Burton Act built hospitals everywhere; they were filled by readily available health insurance.

The medical system shifted from a general practitioner backed by consultant specialists to a system of initial care by specialists including the family physician, general internist, pediatrician and gynecologist. (Today these specialists all give primary care backed by subspecialists.) Medical education at all levels, especially the residency years, was lengthened, strengthened and made rigorously scientific.

Despite these enormous changes, noted economist Eli Ginzberg believes that era was stable compared to the present, which he calls the "Era of Destabilization of Health Care."[1]

The destabilization is caused by cost-cutting measures and the increasing supply of hospital beds and physicians. These changes have brought the growth of the managed systems of health care (hospital chains, HMOs, PPOs, EPOs and IPAs) and the rapid shifting of many procedures to ambulatory facilities. The former shift from outpatient to hospital care is reversing rapidly.

Discussion of factors causing these changes is popular. One can hardly pick up a medical journal or lay periodical without finding exhaustive dissertations on socioeconomic changes in medical care. These do not need repetition here. What is important is the effect of these changes on medical specialties and medical societies.

The first challenge is competition. Cost containment by government and business and diminished hospital utilization have led to intense competition for physicians who can attract enough patients in the right DRGs to enhance hospital revenue. In general, this competition has benefited surgical subspecialties more than other specialties. Unchecked, it could distort patient care and damage interspecialty relations.

Cost-containment strategies and an increased supply of physicians have led to competition for patients. This competition has many forms, including the physician vs. the many non-physicians who came into the health care field during the physician shortage. The extent of competition varies among specialties.

Dr. Wilbur is Executive Vice President of the Council of Medical Specialty Societies, Lake Forest, Illinois.

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MEDICAL SPECIALTIES — CHANGES AND CHALLENGES

(Continued from page 107)

It is intense in such fields as psychiatry and ophthalmology and virtually non-existent in thoracic surgery. Some of the competition involves physicians and recognized professions, such as dentists in the field of reconstructive surgery of the lower face. Other competition involves fringe practitioners. In all cases, it is the responsibility of the specialist practitioner to be certain the preservation of high quality health care is the main concern. It is the responsibility of medical societies to protect the patient, the quality of care and the society member.

A more difficult form of competition for medical societies is that among specialties. An example is plastic surgery of the face. Here, there is competition with the dental surgeon, plastic surgeons, otolaryngology/head and neck surgeons, general surgeons and dermatologists. The quality of care must be the guiding principle for resolving differences. However, the roles of societies may differ. The specialist's society protects the training and performance standards for that specialty. The state medical society has a more difficult role because any decision may alienate some members.

Another level of competition is that between two subspecialties or between the sub-specialists and the "general specialists" within that specialty. Sub-specialty societies usually present a position for their members and it is the problem of the overall specialty society to placate different types of members without alienating either group. The proper role of specialty societies and the state medical society is as mediator and convener of meetings to resolve disputes.

A second challenge to most medical specialties is professional liability. Here is an excellent opportunity for the state medical society and local specialty societies to work together. Tort reform is most commonly approached through state legislatures, which is the natural province of the state society.

There are non-tort reform approaches. The Council of Medical Specialty Societies (CMSS) is emphasizing prevention of the original injury which brought about the claim. By analyzing over 70,000 closed claims gathered by the National Association of Insurance Commissioners (NAIC), the CMSS was able to prepare a breakdown of injuries by specialty and by the procedure and/or diagnosis which led to the claim.

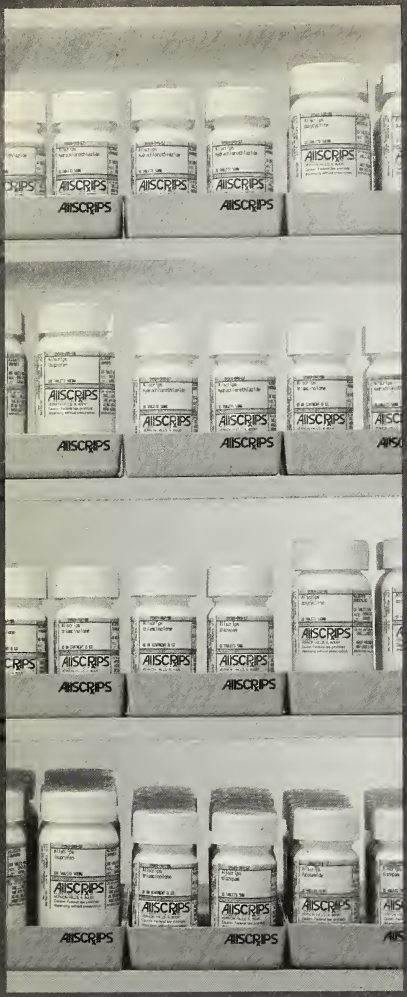
From this data, specialty societies developed informational programs which show specialty physicians how to lessen the potential for injury. While medical practice will never be risk-free, specialty society guidelines can reduce the number of adverse incidents and make it more obvious to a jury a bad result came as a natural result of the disease, not negligence.

Cost-containment and the increase in liability suits lead to a third challenge — specialty societies setting standards for the quality of medical care. Too often, standards for reimbursable tests and procedures are set by the government or private insurance carriers. At the same time, juries decide on the basis of "expert testimony" that multiple tests and procedures are necessary to maintain the standard of care in the community and that failure to do these tests or procedures is evidence of negligence. It is intolerable that standards of health care are set by insurance company clerks and uninformed juries and judges. The CMSS is working with specialty societies to develop guidelines for a diagnosis. To avoid "cookbook medicine," any guidelines must provide for the exceptional case and must be established by those who best understand how health care should be delivered in the community — the physicians who practice there.

"The specialist's society protects the training and performance standards for that specialty. The state medical society has a more difficult role because any decision may alienate some members."

A fourth challenge has arisen as a consequence of the rapid growth of American medical schools (from 60 to 127) since World War II. The number and type of persons becoming doctors have changed. [In the period from the middle 1950s to 1976, many new physicians were graduates of foreign medical schools

(Please turn to page 111)



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for healed duodenal ulcer patients

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In two randomized, double-blind, and well-controlled clinical trials, ZANTAC 150 mg h.s. significantly superior to cimetidine 400 mg h.s. for maintenance therapy in healed duodenal ulcers.

Percent of patients with observed duodenal ulcer recurrence

		0-4 months	0-8 months	0-12 months	No. patients
USA[1]	ranitidine 150 mg h.s.	9%	14%*	16%†	60
	cimetidine 400 mg h.s.	23%	34%	43%	66
UK, Ireland, Australia[2]	ranitidine 150 mg h.s.	8%‡	14%‡	23%‡	243
	cimetidine 400 mg h.s.	21%	34%	37%	241

*p=0.02
†p=0.01
‡p≤0.004
%=life-table estimates
All patients were permitted prn antacids for relief of pain.

These two trials used the currently recommended dosing regimen of cimetidine (400 mg h.s.) and ranitidine (150 mg h.s.). A comparison of other dosing regimens has not been studied.

The studied dosing regimens are not equivalent with respect to the degree and duration of acid suppression or suppression of nocturnal acid.

The superiority of ranitidine over cimetidine in these trials indicates that the dosing regimen currently recommended for cimetidine is less likely to be as successful in maintenance therapy.

Convenient once-a-night dose with a

low incidence of side effects[3]

Headache, sometimes severe, seems to be related to ranitidine administration. Other side effects have been reported; for a complete listing, see the **ADVERSE REACTIONS** section in the Brief Summary.

No significant interference with the hepatic cytochrome

P-450 enzyme system at recommended doses

ZANTAC 150 mg has no significant drug interactions with theophylline, phenytoin, or warfarin. The bioavailability of certain medications whose absorption is dependent on a low gastric pH may be altered when ZANTAC or other medications that decrease gastric acidity are administered.

Zantac® 150
ranitidine HCl/Glaxo 150 mg tablets

One tablet at bedtime
for maintenance

See next page for references and
Brief Summary of Product Information.

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Zantac® 150

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One tablet at bedtime for maintenance therapy in healed duodenal ulcer patients

References:

1. Silvis SE, Griffin J, Hardin R, et al: Final report on the United States multicenter trial comparing ranitidine to cimetidine as maintenance therapy following healing of duodenal ulcer. *J Clin Gastroenterol* 1985;7(6):482-487.
2. Gough KR, Korman MG, Bardhan KD, et al: Ranitidine and cimetidine in prevention of duodenal ulcer relapse: A double-blind, randomised, multicentre, comparative trial. *Lancet* 1984;ii:659-662.
3. Data available on request, Glaxo Inc.

ZANTAC® 150 Tablets
(ranitidine hydrochloride)
ZANTAC® 300 Tablets
(ranitidine hydrochloride)

BRIEF SUMMARY OF PRDDUCT INFORMATION

The following is a brief summary only. Before prescribing, see complete prescribing information in ZANTAC® product labeling.

INDICATIONS AND USAGE: ZANTAC® is indicated in:

1. Short-term treatment of **active duodenal ulcer.** Most patients heal within four weeks.
2. **Maintenance therapy** for duodenal ulcer patients at reduced dosage after healing of acute ulcers.
3. The treatment of **pathological hypersecretory conditions** (eg, Zollinger-Ellison syndrome and systemic mastocytosis).
4. Short-term treatment of **active, benign gastric ulcer.** Most patients heal within six weeks and the usefulness of further treatment has not been demonstrated.
5. Treatment of **gastroesophageal reflux disease (GERD).** Symptomatic relief commonly occurs within one or two weeks after starting therapy and is maintained throughout a six-week course of therapy.

In active duodenal ulcer; active, benign gastric ulcer; hypersecretory states; and GERD, concomitant antacids should be given as needed for relief of pain.

CONTRAINDICATIONS: ZANTAC® is contraindicated for patients known to have hypersensitivity to the drug.

PRECAUTIONS: Symptomatic response to ZANTAC® therapy does not preclude the presence of gastric malignancy.

Since ZANTAC is excreted primarily by the kidney, dosage should be adjusted in patients with impaired renal function (see **DOSAGE AND ADMINISTRATION**). Caution should be observed in patients with hepatic dysfunction since ZANTAC is metabolized in the liver.

False-positive tests for urine protein with Multistix® may occur during ZANTAC therapy, and therefore testing with sulfosalicylic acid is recommended.

Although recommended doses of ZANTAC do not inhibit the action of cytochrome P-450 enzymes in the liver, there have been isolated reports of drug interactions which suggest that ZANTAC may affect the bioavailability of certain drugs by some mechanism as yet unidentified (eg, a pH-dependent effect on absorption or a change in volume of distribution).

Lack of experience to date precludes recommending ZANTAC for use in children or pregnant patients. Since ZANTAC is secreted in human milk, caution should be exercised when administered to a nursing mother.

ADVERSE REACTIONS: Headache, sometimes severe, seems to be related to ZANTAC® administration. Constipation, diarrhea, nausea/vomiting, and abdominal discomfort/pain have been reported. There have been rare reports of malaise, dizziness, somnolence, insomnia, vertigo, tachycardia, bradycardia, premature ventricular beats, and arthralgias. Rare cases of reversible mental confusion, agitation, depression, and hallucinations have been reported, predominantly in severely ill elderly patients.

In normal volunteers, SGPT values were increased to at least twice the pretreatment levels in 6 of 12 subjects receiving 100 mg qid IV for seven days, and in 4 of 24 subjects receiving 50 mg qid for five days. With oral administration there have been occasional reports of reversible hepatitis, hepatocellular or hepatocanalicular or mixed, with or without jaundice.

There have been rare reports of reversible leukopenia, granulocytopenia, thrombocytopenia, and pancytopenia.

Although controlled studies have shown no antiandrogenic activity, occasional cases of gynecomastia, impotence, and loss of libido have been reported in male patients receiving ZANTAC, but the incidence did not differ from that in the general population.

Incidents of rash, including rare cases suggestive of mild erythema multiforme, and, rarely, alopecia, have been reported, as well as rare cases of hypersensitivity reactions (eg, bronchospasm, fever, rash, eosinophilia) and small increases in serum creatinine.

OVERDDSAGE: Information concerning possible overdosage and its treatment appears in the full prescribing information.

DOSAGE AND ADMINISTRATION: Active Ouodenal Ulcer: The current recommended adult oral dosage is 150 mg twice daily. An alternate dosage of 300 mg once daily at bedtime can be used for patients in whom dosing convenience is important. The advantages of one treatment regimen compared to the other in a particular patient population have yet to be demonstrated.

Maintenance Therapy: The current recommended adult oral dosage is 150 mg at bedtime.

Pathological Hypersecretory Conditions (such as Zollinger-Ellison Syndrome): The current recommended adult oral dosage is 150 mg twice a day. In some patients it may be necessary to administer ZANTAC 150-mg doses more frequently. Doses should be adjusted to individual patient needs, and should continue as long as clinically indicated. Doses up to 6 g/day have been employed in patients with severe disease.

Benign Gastric Ulcer: The current recommended adult oral dosage is 150 mg twice a day.

GERD: The current recommended adult oral dosage is 150 mg twice a day.

Dosage Adjustment for Patients with Impaired Renal Function: On the basis of experience with a group of subjects with severely impaired renal function treated with ZANTAC, the recommended dosage in patients with a creatinine clearance less than 50 ml/min is 150 mg every 24 hours. Should the patient's condition require, the frequency of dosing may be increased to every 12 hours or even further with caution. Hemodialysis reduces the level of circulating ranitidine. Ideally, the dosage schedule should be adjusted so that the timing of a scheduled dose coincides with the end of hemodialysis.

HDW SUPPLIED: ZANTAC® 300 Tablets (ranitidine hydrochloride equivalent to 300 mg of ranitidine) are yellow, capsule-shaped tablets embossed with "ZANTAC 300" on one side and "Glaxo" on the other. They are available in bottles of 30 (NDC 0173-0393-40) and unit dose packs of 100 tablets (NDC 0173-0393-47).

ZANTAC® 150 Tablets (ranitidine hydrochloride equivalent to 150 mg of ranitidine) are white tablets embossed with "ZANTAC 150" on one side and "Glaxo" on the other. They are available in bottles of 60 tablets (NDC 0173-0344-42) and unit dose packs of 100 tablets (NDC 0173-0344-47).

Store between 15° and 30°C (59° and 86°F) in a dry place. Protect from light. Replace cap securely after each opening.

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MEDICAL SPECIALTIES — CHANGES AND CHALLENGES

(Continued from page 109)

(FMGs); by 1972, 20% of the doctors in the United States were graduates from other countries. While this has declined since the passage of PL94-484 in 1976, another change has taken its place.] During the post-Flexner era, the typical American physician was a middle-aged, white male. Now, more physicians are younger, female and members of a minority. Young physicians are far less likely to enter traditional fee-for-service solo practice.

These changes have been felt slowly in medical societies since younger physicians traditionally have not taken leadership roles and new physicians tend to shun organized medicine. As medical society dues have increased and medical income has not kept pace, it has become more difficult to persuade young physicians to be medical society members. In addition, dues now come more from the physician's pocket and less from an income tax reduction. The challenge is to prove the value of medical societies to the younger physician.

Specialties change. Most of the certifying boards for medical specialties were established before 1950. Of the 23 boards, only 4 were incorporated after 1949. However, specialties are not constant. They are changed by biology. Cancer of the stomach declines and cancer of the pancreas increases. Specialties based on tuberculosis and syphillis have disappeared. Others, such as oncology, have appeared and there will soon be one for AIDS.

Technology changes specialties. Treatment of coronary artery disease has gone from passive to active. New specialties have arisen around imaging and endoscopy. Pathology has been changed drastically by the office lab; all types of surgery have been affected by the shift from hospital to ambulatory facility. The education and practice of psychiatry is being reformed by psychopharmacology; orthopaedics is being fragmented by technological advances in the various sub-specialties.

Population demographics change specialties. When pediatrics became a specialty in the late 19th century, the high birth rate and short longevity made it a specialty affecting a large percentage of the population. Now, the combination of the "baby bust" and a steady lengthening of life span have diminished clientele while creating a new galaxy of geriatric specialties.

The future promises still more changes in both the type of specialty and practice by individual specialists. Developments such as gene manipulation will change disease and the treatment of disease. The cloning of specific antibodies for tumor cells and combining these antibodies with a lethal toxin will cause a dramatic change in cancer treatment. Gene manipulation shows promise of preventing many congenital defects. Because of these changes, new specialties will appear, old specialties will disappear and all specialties will alter. A fifth challenge to the medical specialty societies is being aware of trends and working with members to make the best use of them. As J. Alexander MacMahon, J.D., recent past president of the American Hospital Association, said, "to exploit the inevitable."

> ***"Now, more physicians are younger, female and members of a minority. Young physicians are far less likely to enter traditional fee-for-service solo practice."***

In meeting these challenges, there is a temptation to use the specialty society as a means of causing change which will benefit that specialty in comparison with other specialties. This is a natural but dangerous tendency. It is extremely important for us to remember the words of CMSS Past President Thomas Ferguson, M.D., "Never forget that the Indians are the ones outside the stockade." It is imperative all specialists work together for we have plenty of challengers outside the stockade without wasting our energies fighting each other. The differences between specialties are easy to see, but the similarities are vital to the profession.

The Era of Destabilization brings many challenges to physicians and their different societies. Only by working together can we meet them successfully.

References

1. Ginzberg E: The Destabilization of Health Care. *New Eng J Med*, Sept 1986;315:757-761.

Questions and Answers — An Interview With Three Department Heads, U. of I. College of Medicine

What's New?

FRANCOIS M. ABBOUD, M.D.,
RICHARD D. WILLIAMS, M.D., and
FRANK H. MORRISS, JR., M.D.
Iowa City, Iowa

In this month's expanded Q & A feature, 3 University of Iowa department heads discuss pivotal developments that are, or soon will be, reflected in improved patient care. Dr. Abboud is head of the Department of Internal Medicine; Dr. Williams is head of the Department of Urology; and Dr. Morriss is head of the Department of Pediatrics.

What's new in Internal Medicine?

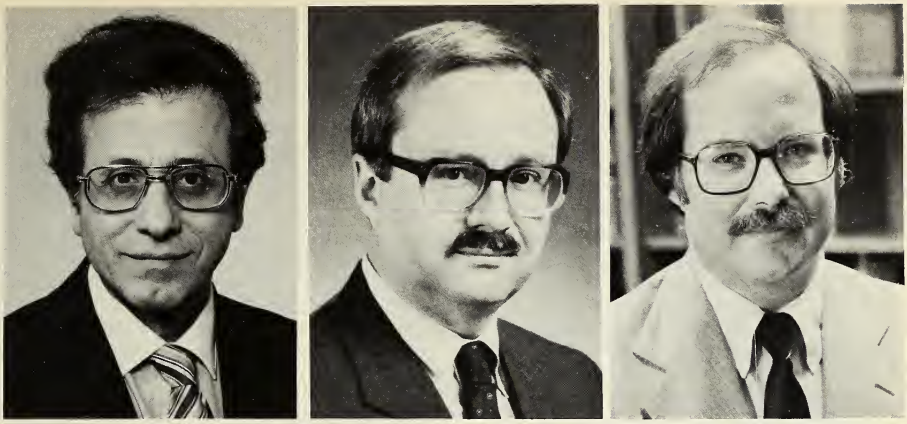
Research in the *Division of Allergy-Immunology* includes examination of: effective immune response modifiers to stimulate production of lymphokine-activated cells that kill tumor cells; non-sedating antihistamines that do not cross the blood-brain barrier; drugs that block leukotrienes (a cause of bronchial asthma); use of cyclosporin in treating autoimmune diseases; standardization of allergins for diagnosis; and development of allergin preparations that require fewer shots and cause fewer side effects.

A new class of oral agents in clinical trial in the *Division of Cardiovascular Diseases* shows great promise for inhibiting reductase, which controls the liver's manufacture of cholesterol. Balloon valvuloplasty is providing nonsurgical treatment for aortic or mitral stenosis. Catheter ablation (electrical modification of arrhythmia-producing tissue in the heart) is proving very effective in refractory arrhythmias; tests continue on a new pacemaker that responds to the body's physiologic need for rate adjustment, based on changes in blood temperature in the right ventricle.

A new treatment for drug overdose poisoning developed by UI researchers is now available. Investigation in the *Division of Clinical Pharmacology* suggests this treatment — gastrointestinal dialysis with activated charcoal — might also lower cholesterol levels in patients with hypercholesterolemia.

Technological refinements have resulted in development of video endoscopes to replace older, fiberoptic equipment. Faculty members in the *Division of Gastroenterology-Hepatology* will soon be using a gallstone lithotripter.

Division of Hematology-Oncology researchers have found that by removing bone marrow from a patient and purging lymphoma cells with the monoclonal antibody B1, before reinfusing the marrow, cancer cells are eliminated and the risk of disease recurrence is greatly reduced. Iowa's new membership in Cancer and Leukemia Group B, a multi-institutional clinical trials group centered in Boston, brings patients and researchers a broad variety of experimental protocols and drugs. Hematologic disorders including hairy-cell leukemia, Hodgkin's disease, multiple myeloma and chronic myelocytic leukemia are being treated with interferon, a biologic response modifier



Three U. of I. College of Medicine Specialists — Francois M. Abboud, M.D., Department of Internal Medicine, Richard D. Williams, Department of Urology and Frank H. Morriss, Jr., M.D., Department of Pediatrics, comment on latest developments in their particular specialties.

with fewer side effects than chemotherapies.

Preventive vaccination for parasitic diseases is the goal of *Division of Infectious Diseases* researchers. Utilizing the technologies of monoclonal antibodies and molecular biology, in-vitro studies are being conducted of infective forms of *Leishmania* and *Trypanosoma cruzi*, leading causes of morbidity and mortality in developing countries.

Most patients on renal dialysis develop anemia. *Division of Nephrology* researchers have found that cloned human erythropoietin effectively increases the number of red blood cells.

The Division of Pulmonary Diseases is utilizing a 5-year grant from the National Institutes of Health to establish a Specialized Center of Research in Occupational and Immunologic Lung Diseases. A recently established Sleep Disturbance Clinic provides specialized care for patients with sleep apnea syndrome resulting from medical problems.

In the *Division of Rheumatology*, researchers seek to refine a diagnostic process utilizing cloned DNA gene probes. D-region histocompatability antigens (DR molecules) that control immune response are being examined to devise tests to predict risk for such conditions as rheumatoid arthritis.

What's new in Urology?

Iowa faculty have initiated innovative clinical programs in treatment of urinary calculi, diagnosis and treatment of penile impotence and transitional cell or urothelial cancer.

The most recent technological advance in the surgical treatment of urinary stones involves fluoroscopically focused shock-waves (ESWL) which pass through a patient immersed in a water bath and fragment calculi in the kidney and upper ureter into pieces small enough to pass down the ureter and be eliminated in voided urine. Within a year, a similar machine will be available at University Hospitals to treat gallstones. A prototype machine is being used in the urology research laboratory to study better methods of stone fragmentation and possible applications in orthopaedics and oncology.

Further understanding of the physiologic mechanism and the vascular pharmacology of erection have led to improvements in the diagnosis and treatment of impotence. Vasoactive drugs such as papaverine and phentolamine injected directly into the corpora cavernosum of the penis can produce an artificial erection.

Until 2 years ago, metastatic cancer of the renal pelvis, ureters and bladder was unresponsive to curative treatment. Chemotherapeutic drug combinations of cisplatinum, methotrexate and vinblastine (CMV), or with the addition of doxorubicin (M-VAC), have re-

(Please turn to page 114)

WHAT'S NEW

(Continued from page 113)

cently shown significant improvement in response rates.

The long-range prognosis of patients responding to CMV is not yet known. Iowa studies are aimed at determining the optimum number of courses of CMV required, alternative combinations or sequences of drugs to effect a higher response rate with improved durability and whether a similar drug regimen will improve the long-term survival of patients with localized primary urethelial cancer.

What's new in Pediatrics?

A 5-bed pediatric bone-marrow transplantation unit opened in mid-1986 for children with unresponsive leukemia, aplastic anemia, immune deficiency disorders or certain genetic disorders. Successful engraftment has been achieved in T-lymphocyte depleted mismatched transplants in 95% of patients, with a "cure" rate of about 25% in childhood leukemia.

In early January of 1987, a 4-bed unit opened for infants with chronic lung diseases. Directed by neonatologists and pediatric pulmonary specialists, the unit serves preterm infants whose premature birth necessitated support with intermittent mechanical ventilation and oxygen, preterm infants who have had idiopathic respiratory distress syndrome and term infants who have experienced the adverse pulmonary consequences of meconium aspiration.

New staff and tools enable the pediatric gastroenterology service to serve a more diverse patient population by advancing diagnostic accuracy and specificity for chronic vomiting, diarrhea, gastroesophageal reflux, lactase deficiency and cow milk and/or soy protein intolerance. The pediatric gastroenterologists are prepared to evaluate children with impending liver failure, provide for their care in anticipation of liver transplantation and refer them as candidates for transplantation.

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Emphasis is on practical problem solving; therefore, you are asked to submit questions, problems and cases in advance so workshops can be tailored to your needs.

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June 20 -25
GENERAL PRINCIPALS OF RECONSTRUCTIVE SURGERY:
JAMES A. EDMOND, M.D.
Assistant Professor of Plastic Surgery
Albany Medical College
Albany, New York

June 28 - July 3
ORTHOPEDIC TRAUMA:
FRED BEHRENS, M.D.
Associate Professor Orthopedic Surgery
University of Minnesota
St. Paul, Minnesota

July 6 - 11
HIGH WATER MARKS IN HAND SURGERY:
JAMES G. HOEHN, M.D.
Associate Professor Plastic Surgery
Albany Medical College
Albany, New York

July 22 - 27
ATHLETIC INJURIES OF THE HAND:
JOSEPH E. KUTZ, M.D.
Associate Clinical Professor
University of Louisville School of Medicine
Louisville, Kentucky

July 30 - August 4
LOW BACK PROBLEMS:
VERT MOONEY, M.D.
Professor & Chairman Orthopedics
University of Texas Medical School-Dallas
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August 15 - 20
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August 23 - 28
BUNIONS & COMPLICATIONS:
MICHAEL J. COUGHLIN, M.D.
Chief of Orthopedics
St. Alphonsus Regional Medical Center
Division of Orthopedic Surgery
Boise, Idaho

August 31 - September 5
INFECTIOUS DISEASES — ANTIMICROBIAL THERAPY UPDATE:
STEPHEN R. JONES, M.D.
Associate Professor of Internal Medicine
Oregon Health Sciences University
Portland, Oregon

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Dr. Robert J. Porter II, M.D., an orthopedic surgeon who also owns Middle Fork Rapid Transit, a white water float company, is in his sixth year of offering Float Idaho Medical Workshops. On days off from his private practice with Twin Falls Orthopedic Associates, Dr. Porter sheds his surgical greens and dons a pair of jeans, a wool shirt and leather gloves — his standard attire for guiding white water expeditions on the Middle Fork. Porter, who also guides river trips in Oregon, Alaska, Washington, Utah, California, as well as Idaho, personally plans each trip guaranteeing professionalism in all aspects of your workshops.



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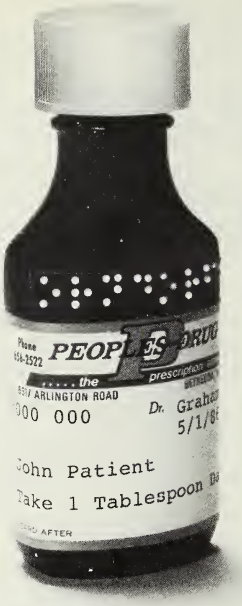
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Banding Technique For Hemostasis of Post Polypectomy Bleeding

DAN L. ROBINSON, M.D.,
FRANK J. SPOKAS, M.D., and
DAVID C. SMITH, M.D.
Des Moines, Iowa

Hemorrhage is the most common complication after endoscopic biopsy or polypectomy. However, significant bleeding is uncommon. The following describes use of the hemorrhoid bander to achieve hemostasis after the proctoscopic removal of a recto sigmoid polyp resulted in significant bleeding.

A 73-YEAR-OLD MALE underwent proctosigmoidoscopy for evaluation of hematochezia. A large 3 × 3.5 cm pedunculated polyp 13 cm from the anal verge was found and removed. Direct swab pressure and electrofulguration of the remaining stalk was performed and hemostasis was felt to be adequate. Six hours after polypectomy, the patient began to pass large amounts of bright red blood and clots per rectum. Estimated blood loss was 1700 cc's. A significant decrease in the patient's Hb/Hct occurred (Hb 1.5 gm, Hct 7.0 vol%).

Repeat proctosigmoidoscopy revealed an arterial bleeder at 13 cm in the area of the previous polypectomy. Direct pressure and electrocoagulation were unsuccessful in achieving definitive hemostasis. Utilizing the Pillar hemorrhoid bander, 3 latex bands were placed over the stalk, resulting in cessation of the bleeding (Figure 1). There was no subsequent bleeding and the patient recovered uneventfully.

Discussion

Clinically significant bleeding after proctosigmoidoscopic procedures is unusual. Use of direct pressure, vasoconstrictor application, topical hemostatic agents, electrocoagulation and snare polypectomy have been described to aid in achieving hemostasis. With the introduction of fiberoptic coagulative snare polypectomy, the incidence of such bleeding should continue to decrease. Present reports describe post polypectomy hermorrhage in 0.7-2.2% of such procedures.[1]

Bleeding from the transected stalk can generally be treated expectantly. However, intervention may be required in a small number of

The authors are associated with the Veterans Administration Center, Department of Surgery, Des Moines.

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR THE MONTH OF MARCH 1987

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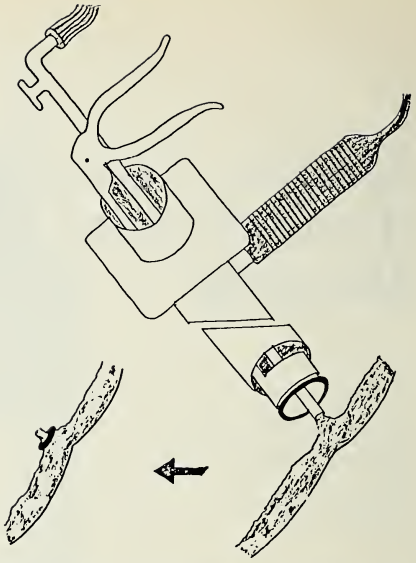


Figure 1. Hemorrhoid bander is inserted through the proctoscope. The suction tip ploces troction on the bleeding point to "tent" it into the lumen to avoid bonding the full thickness of the rectal woll. The bander is centered over the bleeding point ond fired when it mokes contoct with the mucosol surfoce.

patients. Strangulation of the transected stalk with the snare, electrocoagulation, selective intra-arterial vasopressin infusion and surgical ligation have all been utilized.[1-3]

Summary

A technique for achieving hemostasis in post polypectomy bleeding using the hemorrhoid bander is described. This technique may be useful in patients who continue to bleed after other maneuvers have failed.

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1. Hunt, RH and Waye, JD. Colonoscopy. London: Chapman and Hall, Ltd., 1981:250-251.
2. Spencer, RJ, *et al*. Colonoscopic Polypectomies. Mayo Clin Proced 1974;49:40-43.
3. Carlyle, DR and Goldstein, HM: Angiographic Management of Bleeding Following Transcolonoscopic Polypectomy. Dig. Dis. 1975;20:1196-1201.

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BRIEF SUMMARY *(FOR FULL PRESCRIBING INFORMATION AND PATIENT INFORMATION, SEE PACKAGE CIRCULARS.)*

PREMARIN® Brand of conjugated estrogens tablets, USP
PREMARIN® Brand of conjugated estrogens Vaginal Cream in a nonliquefying base

1. ESTROGENS HAVE BEEN REPORTED TO INCREASE THE RISK OF ENDOMETRIAL CARCINOMA

Three independent case control studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens for more than one year. This risk was independent of the other known risk factors for endometrial cancer. These studies are further supported by the finding that incidence rates of endometrial cancer have increased sharply since 1969 in eight different areas of the United States with population-based cancer reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade. The three case control studies reported that the risk of endometrial cancer in estrogen users was about 4.5 to 13.9 times greater than in nonusers. The risk appears to depend on both duration of treatment and on estrogen dose. In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible. When prolonged treatment is medically indicated, the patient should be reassessed on at least a semiannual basis to determine the need for continued therapy. Although the evidence must be considered preliminary, one study suggests that cyclic administration of low doses of estrogen may carry less risk than continuous administration; it therefore appears prudent to utilize such a regimen. Close clinical surveillance of all women taking estrogens is important. In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding, adequate diagnostic measures should be undertaken to rule out malignancy. There is no evidence at present that "natural" estrogens are more or less hazardous than "synthetic" estrogens at equiestrogenic doses.
2. ESTROGENS SHOULD NOT BE USED DURING PREGNANCY
The use of female sex hormones, both estrogens and progestogens, during early pregnancy may seriously damage the offspring. It has been shown that females exposed in utero to diethylstilbestrol, a non-steroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated as not greater than 4 per 1,000 exposures. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have vaginal adenosis, epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are precursors of malignancy. Although similar data are not available with the use of other estrogens, it cannot be presumed they would not induce similar changes. Several reports suggest an association between intrauterine exposure to female sex hormones and congenital anomalies, including congenital heart defects and limb reduction defects. One case control study estimated a 4.7-fold increased risk of limb reduction defects in infants exposed in utero to sex hormones (oral contraceptives, hormone withdrawal tests for pregnancy, or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb reduction defects in exposed fetuses is somewhat less than 1 per 1,000. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well controlled studies that progestogens are effective for these uses. If PREMARIN is used during pregnancy, or if the patient becomes pregnant while taking this drug, she should be apprised of the potential risks to the fetus, and the advisability of pregnancy continuation.

DESCRIPTION: PREMARIN (conjugated estrogens, USP) contains a mixture of estrogens, obtained exclusively from natural sources, blended to represent the average composition of material derived from pregnant mares' urine. It contains estrone, equilin, and 17α-dihydroequilin, together with smaller amounts of 17α-estradiol, equilenin, and 17α-dihydroequilenin as salts of their sulfate esters. Tablets are available in 0.3 mg, 0.625 mg, 0.9 mg, 1.25 mg, and 2.5 mg strengths of conjugated estrogens. Cream is available as 0.625 mg conjugated estrogens per gram.

INDICATIONS AND USAGE: PREMARIN (conjugated estrogens tablets, USP): Moderate-to-severe *vasomotor* symptoms associated with the menopause. (There is no evidence that estrogens are effective for nervous symptoms or depression which may be associated with hysterectomy and they should not be used to treat such conditions.) **Osteoporosis (abnormally low bone mass).** Atrophic vaginitis. Kraurosis vulvae. Female castration.

PREMARIN (conjugated estrogens) Vaginal Cream is indicated in the treatment of atrophic vaginitis and kraurosis vulvae. PREMARIN HAS NOT BEEN SHOWN TO BE EFFECTIVE FOR ANY PURPOSE DURING PREGNANCY AND ITS USE MAY CAUSE SEVERE HARM TO THE FETUS (SEE BOXED WARNING).
Concomitant Progestin Use: The lowest effective dose appropriate for the specific indication should be utilized. Studies of the addition of a progestin for 7 or more days of a cycle of estrogen administration have reported a lowered incidence of endometrial hyperplasia. Morphological and biochemical studies of the endometrium suggest that 10 to 13 days of progestin are needed to provide maximal maturation of the endometrium and to eliminate any hyperplastic changes. Whether this will provide protection from endometrial carcinoma has not been clearly established. There are possible additional risks which may be associated with the inclusion of progestin in estrogen replacement regimens. (See PRECAUTIONS.) The choice of progestin and dosage may be important; product labeling should be reviewed to minimize possible adverse effects.
CONTRAINDICATIONS: Estrogens should not be used in women (or men) with any of the following conditions: 1. Known or suspected cancer of the breast except in appropriately selected patients being treated for metastatic disease. 2. Known or suspected estrogen-dependent neoplasia. 3. Known or suspected pregnancy (See Boxed Warning). 4. Undiagnosed abnormal genital bleeding. 5. Active thrombophlebitis or thromboembolic disorders. 6. A past history of thrombophlebitis, thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast or prostatic malignancy).
WARNINGS: Long-term continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina, and liver. There are now reports that estrogens increase the risk of carcinoma of the endometrium in humans. (See Boxed Warning.) At the present time there is no satisfactory evidence that estrogens given to postmenopausal women increase the risk of cancer of the breast, although a recent study has raised this possibility. There is a need for caution in prescribing estrogens for women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms. A recent study has reported a 2- to 3-fold increase in the risk of surgically confirmed gallbladder disease in women receiving postmenopausal estrogens.

Adverse effects of oral contraceptives may be expected at the larger doses of estrogen used to treat prostatic or breast cancer or postpartum breast engorgement; it has been shown that there is an increased risk of thrombosis in men receiving estrogens for prostatic cancer and women for postpartum breast engorgement. Users of oral contraceptives have an increased risk of diseases, such as thrombophlebitis, pulmonary embolism, stroke, and myocardial infarction. Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users. An increased risk of postsurgery thromboembolic complications has also been reported in users of oral contraceptives. If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism, or during periods of prolonged immobilization. Estrogens should not be used in persons with active thrombophlebitis, thromboembolic disorders, or in persons with a history of such disorders in association with estrogen use. They should be used with caution in patients with cerebral vascular or coronary artery disease. Large doses (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast, have been shown to increase the risk of nonfatal myocardial infarction, pulmonary embolism and thrombophlebitis. When doses of this size are used, any of the thromboembolic and thrombotic adverse effects should be considered a clear risk.

Benign hepatic adenomas should be considered in estrogen users having abdominal pain and tenderness, abdominal mass, or hypovolemic shock. Hepatocellular carcinoma has been reported in women taking estrogen-containing oral contraceptives. Increased blood pressure may occur with use of estrogens in the menopause and blood pressure should be monitored with estrogen use. A worsening of glucose tolerance has been observed in patients on estrogen-containing oral contraceptives. For this reason, diabetic patients should be carefully observed. Estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases.
PRECAUTIONS: Physical examination and a complete medical and family history should be taken prior to the initiation of any estrogen therapy with special reference to blood pressure, breasts, abdomen, and pelvic organs, and should include a Papanicolaou smear. As a general rule, estrogen should not be prescribed for longer than one year without another physical examination being performed. Conditions influenced by fluid retention such as asthma, epilepsy, migraine, and cardiac or renal dysfunction, require careful observation. Certain patients may develop manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding, mastodynia, etc. Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients. Oral contraceptives appear to be associated with an increased incidence of mental depression. Patients with a history of depression should be carefully observed. Preexisting uterine leiomyomata may increase in size during estrogen use. The pathologist should be advised of estrogen therapy when relevant specimens are submitted. If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated. Estrogens should be used with care in patients with impaired liver function, renal insufficiency, metabolic bone diseases associated with hypercalcemia, or in young patients in whom bone growth is not complete. If concomitant progestin therapy is used, potential risks may include adverse effects on carbohydrate and lipid metabolism.
The following changes may be expected with larger doses of estrogen:
a. Increased sulfobromophthalein retention.
b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability.
c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by PBI, T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered.
d. Impaired glucose tolerance.
e. Decreased pregnanediol excretion.
f. Reduced response to metyrapone test.
g. Reduced serum folate concentration.
h. Increased serum triglyceride and phospholipid concentration. As a general principle, the administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk.
ADVERSE REACTIONS: The following have been reported with estrogenic therapy, including oral contraceptives: breakthrough bleeding; spotting; change in menstrual flow; dysmenorrhea; premenstrual-like syndrome; amenorrhea during and after treatment; increase in size of uterine fibromyomata; vaginal candidiasis; change in cervical erosion and in degree of cervical secretion; cystitis-like syndrome; tenderness, enlargement, secretion (of breasts); nausea, vomiting, abdominal cramps, bloating; cholestatic jaundice; chloasma or melasma which may persist when drug is discontinued; erythema multiforme; erythema nodosum; hemorrhagic eruption; loss of scalp hair; hirsutism; steepening of corneal curvature; intolerance to contact lenses; headache, migraine, dizziness, mental depression, chorea; increase or decrease in weight; reduced carbohydrate tolerance; aggravation of porphyria; edema; changes in libido.
ACUTE OVERDOSAGE: May cause nausea, and withdrawal bleeding may occur in females.
DOSAGE AND ADMINISTRATION:
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1. *Given cyclically for short-term use only.* For treatment of moderate to severe *vasomotor* symptoms, atrophic vaginitis, or kraurosis vulvae associated with the menopause (0.3 to 1.25 mg or more daily). The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible. Administration should be cyclic (eg, three weeks on and one week off). Attempts to discontinue or taper medication should be made at three- to six-month intervals.
2. *Given cyclically for short-term use only.* Osteoporosis. Female castration—1.25 mg daily, cyclically. Adjust upward or downward according to response of the patient. For maintenance, adjust dosage to lowest level that will provide effective control. Osteoporosis —0.625 mg daily. Administration should be cyclic (eg, three weeks on and one week off).
Patients with an intact uterus should be monitored for signs of endometrial cancer and appropriate measures taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.
PREMARIN® Brand of conjugated estrogens Vaginal Cream
Given cyclically for short-term use only. For treatment of atrophic vaginitis or kraurosis vulvae.
The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible.
Administration should be cyclic (eg, three weeks on and one week off).
Attempts to discontinue or taper medication should be made at three-to-six month intervals.
Usual dosage range: 2 to 4 g daily, intravaginally, depending on the severity of the condition.
Treated patients with an intact uterus should be monitored closely for signs of endometrial cancer and appropriate diagnostic measures should be taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.
References:
1. Whitehead MI, Townsend PT, Pryse-Davies J, et al: Effects of estrogens and progestins on the biochemistry and morphology of the postmenopausal endometrium. *N Engl J Med* 1981;305:1599-1605 2. Paterson ME, Wade-Evans T, Sturdee DW, et al: Endometrial disease after treatment with oestrogens and progestogens in the climacteric. *Br Med J* 1980;280:822-824 3. Magos AL, Brincat M, Studd JWW, et al: Amenorrhea and endometrial atrophy with continuous oral estrogen and progestogen therapy in postmenopausal women. *Obstet Gynecol* 1985; 67: 496-499. 4. Whitehead MI, Lane G, Siddle N, et al: Avoidance of endometrial hyperstimulation in estrogen-treated postmenopausal women. *Semin Reprod Endocrinol* 1983;1:1;41-52. 5. Barnes RB, Roy S, Lobo RA: Comparison of lipid and androgen levels after conjugated estrogen or depo-medroxyprogesterone acetate treatment in postmenopausal women. *Obstet Gynecol* 1985;66:216-219

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IOWA CHAPTER
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IOWA CLINICAL SOCIETY OF INTERNAL MEDICINE

May 8-9, 1987

Hosted and Cosponsored by
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Iowa City, Iowa

PROGRAM

Friday, May 8

8:15 a.m. - 4:30 p.m.

Diabetes/Endocrinology Update
Health Policy Forum
Computer Applications for Physicians
Cardiovascular Update
Case Presentations

Saturday, May 9

8:00 a.m. - 12:00 p.m.

Transplantation 1987
Assessing Surgical Risk

GUEST FACULTY:

R. Wayne Alexander, M.D., Ph.D., Associate Professor, Department of Internal Medicine, Harvard Medical School, Boston Massachusetts

Douglas Greene, M.D., Professor and Chair, Division of Endocrinology, Department of Internal Medicine, University of Michigan School of Medicine, Ann Arbor, Michigan

Harold Lebovitz, M.D., Professor and Chair, Division of Endocrinology, Department of Internal Medicine, Downstate College School of Medicine, New York

Phil R. Manning, M.D., F.A.C.P., A.C.P. Regent, Associate Dean, University of Southern California School of Medicine, Los Angeles, California

Robert T. Manning, M.D., F.A.C.P., A.C.P. Governor, Kansas, Professor of Medicine and Associate Dean, University of Kansas School of Medicine, Wichita, Kansas

Deborah Prout, Director of Health and Public Policy, A.C.P., Philadelphia, Pennsylvania

For a detailed agenda along with advance registration information, fill out and return this form to William Radl, Arrangements Coordinator, Department of Internal Medicine, The University of Iowa Hospitals and Clinics, Iowa City, Iowa 52242 or call (319) 335-8957.

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6th - 7th	Pediatric Ophthalmology and Strabismus
half 8th	Newer Antibiotics
9th - 11th	Allergy and Clinical Immunology
9th - 10th	Eating Disorders
20th - 24th	Family Practice Review: Update 1987
29th - 30th	Alzheimer's Patients
May 7th	Management of a Physician's Office Laboratory
13th - 14th	Human Aging X: Transitional Care of Elderly Patients
15th - 16th	The Complicated Diabetic
17th - 20th	North American Primary Care Research Group
19th	Fourth Annual Symposium on Gynecologic Oncology
20th - 22nd	Current Concepts in Radiation Therapy
29th - 31st	Surgery for Primary Care Physicians
June 1st - 3rd	Laser Surgery in Gynecology
4th - 5th	Unstable Coronary Lesions
5th - 6th	16th Annual Workshop in Clinical Hypnosis: Intro. & Adv.
10th - 12th	Frontiers in Laboratory Medicine
11th - 13th	Interventional Radiology
17th - 19th	Progress in Vascular Surgery
24th - 26th	Topics and Advances in Pediatrics
26th - 27th	Eye Bank Enucleation

JULY - NOVEMBER

July 8th - 11th	Orthopaedic Surgery: Knee
Aug 28th - 29th	Medical Directors
Sept 10th - 11th	Hospital Nutrition Support
10th - 12th	Teaching Geriatric Medicine
11th - 12th	Laser Surgery in Dermatology
16th - 18th	Ob-Gyn Annual Seminar
18th - 19th	Adolescent Medicine: Psychotherapy
21st - 25th	Radiology 1987: Chest-Cardiovascular
28th - Oct 1st	Colon and Rectal Surgery
7th - 9th	Internal Medicine Review
12th - 16th	Aspiration Cytology
22nd - 24th	National Behavioral Pediatric Conference
30th	Teenage Pregnancy
Nov 6th	E.T. Bell Pathology Symposium
6th - 7th	Nutrition in the 80's

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Marion E. Alberts, M.D.

COMMENTING EDITORIALLY



MEDICAL SPECIALTIES

MEDICAL SPECIALTY BOARDS were developed to provide comprehensive qualifying examinations for physicians to fulfill specific requirements. Those who are successful can profess to have proper capabilities in their specialty. The public has assurance a diplomate of a specialty board has received postgraduate training in a specialized area and by passing stringent examinations has demonstrated the knowledge received from that training.

The advancing technologic complexities of medicine have spawned numerous specialty boards as well as sub-specialty qualification in many disciplines. One of the most outstanding innovations of specialty boards was development of the Family Practice specialty. Family physicians were not content to be general practitioners, and have made a marked imprint on the quality of medicine. They remain the backbone of medical practice. Their mission remains to provide medical care to the most important segment of our society — the family. Their expertise includes the medical acumen to see the need for specialty care. The responsibility lies in the hands of the family practitioner and the generalist to direct patients to other specialists. Referrals may be for the direct benefit of the patient or because the complexities are beyond the knowledge of the family physician.

This issue of IOWA MEDICINE is dedicated to the various specialties of medicine. We have selected a few, for to give equal measure to all would be impossible within the scope of our intentions. We recognize the monumental strides made in the subspecialties and they are not unnoticed.

The award of specialization status does not confer upon the diplomate a special place in the world of medicine. That person is first and foremost a physician in the true tradition. Hopes for special status should be shattered at the onset, for the only claim to the position of the specialist should be knowledge in a limited area of medicine. Expertise in a limited field does not necessarily make a better physician. The total physician is most important for the patient.

"Expertise in a limited field does not necessarily make a better physician. The total physician is most important for the patient."

Often we face controversy in medical arenas between the "generalists" and the "specialists." This is foolhardy. Physicians are dedicated to the maintenance of health and providing the best medical care. Disagreements may occur regarding various facets of care. The intentions of all should be to avoid dissention and educate each other so the patient benefits. For one group to deprecate another's abilities is compounding a possible problem. No one can possess all knowledge. To be made aware of a deficiency is of value; the giver and the receiver are the better for it.

We salute the specialties, be they within a broad area or confined to a small segment of medical expertise. We shall work together, impart our knowledge freely to each other, and dedicate our skills to the care of patients. It is unique in our profession that we share our skills as we continue to pursue our ultimate goal of quality medicine for all. — M.E.A.

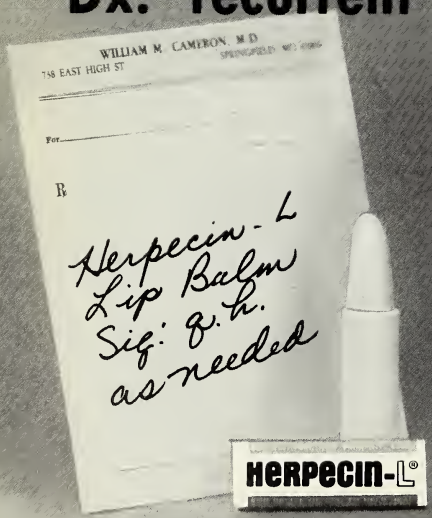
ANNUAL SCIENTIFIC MEETING

THIS ISSUE OF IOWA MEDICINE contains the program of the 1987 IMS Annual Meeting and Scientific Session. Mark the dates on your calendar now . . . April 3-5 at the Hotel Savery. Again we remind you of the change in the dates of the meeting.

Our members and their families will enjoy a few days in Des Moines. The new shops, skywalks and numerous restaurants will provide a fantastic holiday. The scientific program offers a variety of interesting topics. Deliberations by the delegates will provide new directions for the vital functions of the Iowa Medical Society. Become involved, take a couple days away from the office and enter into the new spring season with renewed vigor in the practice of medicine. — M.E.A.

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MERCY HOSPITAL MEDICAL CENTER
DES MOINES, IOWA
PRESENTS

"CHILD ABUSE: CLINICAL PERSPECTIVES"

APRIL 29, 1987

GUEST FACULTY

JAMES GARBARINO, Ph.D.
ERIKSON INSTITUTE
CHICAGO, ILLINOIS

RANDY ALEXANDER, M.D.
DEPARTMENT OF PEDIATRICS
UNIVERSITY OF IOWA HOSPITALS
IOWA CITY, IOWA

MICHAEL ABRAMS, M.D.
DEPARTMENT OF FAMILY PRACTICE
BROADLAWNS MEDICAL CENTER
DES MOINES, IOWA

RIZWAN SHAH, M.D.
DEPARTMENT OF PEDIATRICS
BROADLAWNS MEDICAL CENTER
DES MOINES, IOWA

MARK BARNHILL, D.O.
DEPARTMENT OF PEDIATRICS
MERCY HOSPITAL MEDICAL CENTER
DES MOINES, IOWA

THOMAS FINLEY, J.D.
ATTORNEY AT LAW
DES MOINES, IOWA

TOPICS:

"UNDERSTANDING ABUSIVE FAMILIES"

"CHILD ABUSE: SHAKEN BABY SYNDROME"

"FORENSIC CULPOSCOPIC EVIDENCE OF CHILD SEXUAL ABUSE"

"SUSPICION OF CHILD ABUSE: PHYSICIAN'S OBLIGATION UNDER IOWA LAW"

"PANEL DISCUSSION"

A.M.A. Approved for 4 hours Category I of the Physicians' Recognition Award of the American Medical Association.

Nursing CEU's: 0.45 (4.5 contact hours)

A.A.F.P. and A.O.A. accreditations have been applied for.

Physician Fee	$25.00
Physician's Assistant Fee	$10.00
Nursing Fee	$10.00
Paramedical Fee	$10.00
Complimentary	Residents, Interns & Medical Students

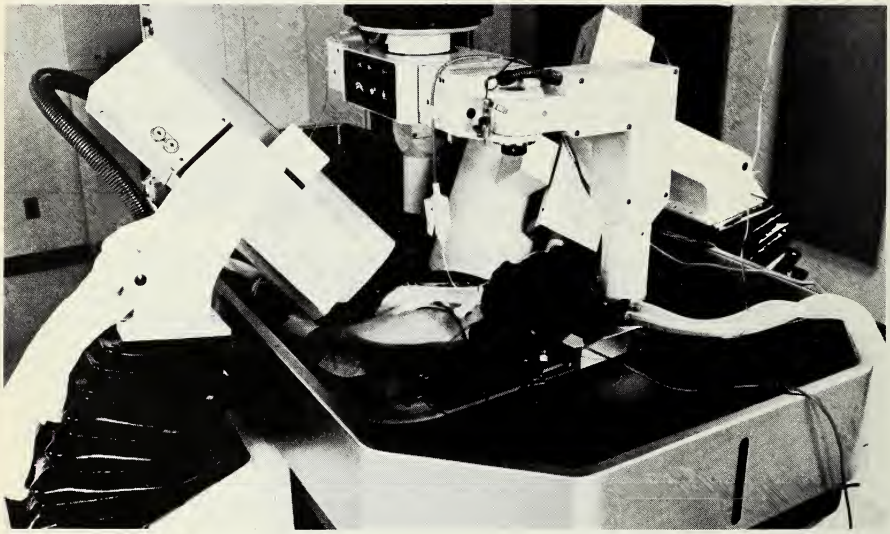
ADVANCED REGISTRATION REQUESTED!

THE SEMINAR WILL BE HELD IN THE MERCY EDUCATION CENTER AT FIFTH STREET AND UNIVERSITY AVENUE IN DES MOINES, IOWA. PARKING IS AVAILABLE ADJACENT TO THE MERCY EDUCATION CENTER.

CONTACT: DEPARTMENT OF MEDICAL EDUCATION
MERCY HOSPITAL MEDICAL CENTER
SIXTH AND UNIVERSITY
DES MOINES, IOWA 50314
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Richard M. Caplan, M.D.

OUR MAN IN EDUCATION



EDUCATIONAL ROLES OF SPECIALITY ORGANIZATIONS

I FEEL COMFORTABLE in generalizing that most medical schools make little or no *concerted* effort to provide instruction or even information about specialty groups or how "medicine organizes itself." Even if we cannot point to material on this topic anywhere in a document of educational objectives or curriculum content, students nonetheless gain lots of information, some of it even accurate. We say it happens "by osmosis," "through role-modeling," "in the process of professionalization," or "they just breathe it in the air" — depending on our individual metaphorical inclinations.

Maybe academicians should attempt more such instruction to undergraduate medical students, but on the other hand, the clinical faculty does much more of it when they wear their hats as teachers of *residents*. Then the sense of organizational relationships becomes more explicit, and loyalties begin to develop — through conscious or unconscious inculcation. Residency, with its compulsion to meet the requirements for licensure and specialty certification and with its mentors exhibiting abundantly their own involvement in diverse specialty organizations, does likely represent the best "teachable moment," even if that moment is really a series of events stretched over a span of a few years. Additionally, the young practitioner comes to know these organizations through peer interaction and the increasing recognition of need for the various educational and other services they provide.

These specialty organizations, through their standards, rules, professional climates, and legal and quasi-legal status, influence the medical school faculty members and thus determine what "the schools" — an abstraction, of course — in fact do. The vagueness of "professional climate" and its interrelationship with "public climate" is illustrated by the item in JAMA (October 24/31, 1986) that reprints material from a century earlier, in which a Philadelphia obstetrician lamented a death because physicians were unwilling to perform a Cesarean section until far too late: "The people are not yet ready in this country to accept Cesarean section, but one of the great troubles is with the general medical profession who regard this as an operation almost necessarily fatal."

Via an assortment of influences and relationships, largely subtle and often unplanned, the specialty societies are enormously important in guiding undergraduate, residency and continuing education as performed by such educational institutions as medical schools, teaching hospitals and even commercial entities, like travel bureaus. The specialty societies indirectly influence all this in addition to their direct action (convening medical meetings and publishing journals, individual study materials — print and non-print — and self-assessment examinations). The perpetual need is our *collective* attention and help (achieved only through *individual* actions) to assure that the organizations continue to perform their multiple functions with the best possible attention to biomedical science, ethical humane caring, and educational effectiveness. In that way they can help maintain the special affinity between the medical profession and its traditional mythologic deity, Apollo, rather than contribute to a fragmenting strife that might lead an observer to think our traditional link to the ancient pantheon is via Mars.

Dr. Caplan is Associate Dean for Continuing Medical Education at The University of Iowa College of Medicine.

One Number

Deborah A. Adkins, M.D. • Vito A. Angelillo, M.D. • Dean F. Arkfeld, M.D. • Eugene J. Barone, M.D. • Francis F. Bartone, M.D. • Richard G. Belatti Jr., M.D. • Donald R. Bennett, M.D. • Thomas M. Besse, M.D. • Againdra K. Bewtra, M.D. • Chhanda Bewtra, M.D. • Martin H. Bierman, M.D. • Marvin J. Bittner, M.D. • Joel N. Bleicher, M.D. • Patrick J. Bogard, M.D. • Richard W. Booth, M.D. • Patrick W. Bowman, M.D. • Alfred W. Brody, M.D. • Patrick E. Brookhouser, M.D. • Walter A. Brzezinski, M.D. • Clayton J. Campbell, M.D. • James T. Cassidy, M.D. • Methven D. Cathro, M.D. • Mieczyslaw M. Cegielski, M.D. • David H. Chait, M.D. • Mark Christensen, M.D. • Terrence F. Ciurej, M.D. • George O. Clifford, M.D. • John F. Connolly, M.D. • Thomas L. Connolly, M.D. • P. James Connor, M.D. • Robert S. Cox Jr., M.D. • Carl H. Dahl, M.D. • James W. Daly, M.D. • Helen-Sinh T. B. Dang, M.D. • H. Jeoffrey Deeths, M.D. • Peter R. DeMarco, M.D. • Tom R. DeMeester, M.D. • Euclid R. J. DeSouza, M.B.B.S. • Meera N. Dewan, M.D. • Francis D. Donahue, M.D. • Carol A. Drake, M.D. • Michael J. Dunn, M.D. • David L. Dworzack, M.D. • John F. Edland, M.D. • William P. Ellermeyer, M.D. • Dennis J. Esterbrooks, M.D. • Robert G. Faier, M.D. • Rose F. Faithe, M.D. • Richcard J. Fangman, M.D. • James J. Faylor, M.D. • Richard J. Feldhaus, M.D. • John J. Ferry, M.D. • Robert J. Fitzgibbons Jr., M.D. • Robert J. Fitzgibbons Sr., M.D. • Timothy C. Fitzgibbons, M.D. • William P. Fitzgibbons, M.D. • Francis M. Fitzmaurice, M.D. • Thomas S. Forrest, M.D. • Alan H. Fruin, M.D. • Ramon M. Fusaro, M.D. • Ray D. Gaines, M.D. • J. Christopher Gallagher, M.D. • Robyn Gembol, M.D. • Dipti Ghoshal, M.D. • Ellen E. Golden, M.D. • Paul D. Goodrich, M.D. • John L. Gordon, M.D. • Peter M. Gordon, M.D. • Joseph F. Gross, M.D. • R. Michael Gross, M.D. • Michael L. Grush, M.D. • Michael J. Haller, M.D. • Michael D. Hammeke, M.D. • John D. Hartigan, M.D. • Thomas T. Hee, M.D. • John J. Heieck, M.D. • Mary H. Heintz, M.D. • Jerrad J. Hertzler, M.D. • Washington C. Hill, M.D. • Bruce A. Holcomb, M.D. • Joseph M. Holthaus, M.D. • Pum-Hi Hong, M.D. • Russell J. Hopp, D.O. • Edward A. Horowitz, M.D. • Mark B. Horton, M.D. • Robert M. Howell, M.D. • Gene R. Huebner, M.D. • William J. Hunter, M.D. • John A. Hurley, M.D. • Mohammed B. Hussain, M.B.B.S. • Frank J. Iwersen, M.D. • Harry J. Jenkins, M.D. • Paul S. Johnson, M.D. • Warren T. Kable, M.D. • David A. Katz, M.D. • J. Whitney Kelley, M.D. • Charles M. Kelly, M.D. • Jay G. Kenik, M.D. • N. Patrick Kenney, M.D. • Harvey A. Konigsberg, M.D. • Bernard L. Kratochvil, M.D. • Mary K. Kratoska, M.D. • Clayton A. Lang, M.D. • Gerald J. Langdon, M.D. • Stephen J. Lanspa, M.D. • Larry L. Latson, M.D. • Arnold W. Lempka, M.D. • Gernon A. Longo, M.D. • Robert J. Luby, M.D. • Henry T. Lynch, M.D. • Joseph D. Lynch, M.D. • James A. Mailliard, M.D. • James L. Manion, M.D. • George D. Maragos, M.D. • Joseph N. Marcus, M.D. • John J. McCarthy, M.D. • John O. McCarthy, M.D. • George A. McClellan, M.D. • James E. McGill, M.D. • Matilda S. McIntire, M.D. • Patrick J. McKenna, M.D. • John F. McLeay, M.D. • Nancy A. Miller, M.D. • Syed M. Mohiuddin, M.D. • Gilles R. G. Monif, M.D. • Iris J. Moore, M.D. • Aryan N. Mooss, M.D. • Michael J. Morrison, M.D. • Richard P. Murphy, M.D. • Chandra Nair, M.D. • Nigar Nair, M.D. • Kevin D. Nohner, M.D. • Walter J. O'Donohue Jr., M.D. • James P. O'Hara, M.D. • James V. Ortman, M.D. • Donald J. Pavelka, M.D. • S. Patrick Peartree, M.D. • Dwaine J. Peetz Jr., M.D. • Richard B. Peters, M.D. • Fred J. Pettid, M.D. • Howard F. Poepsel, M.D. • Thomas J. Poulton, M.D. • Laurel C. Preheim, M.D. • Ira A. Priluck, M.D. • Mary P. Pugsley, M.D. • Rajesh V. Raikar, M.D. • Robert R. Recker, M.D. • Marc S. Rendell, M.D. • Gerald C. Ries, M.D. • Allan M. Rubin, M.D. • Vincent Runco, M.D. • Joseph F. Ruscio, M.D. • Charles T. Rush, M.D. • Jose A. Saporta, M.D. • Mary A. Schermann, M.D. • Edward M. Schima, M.D. • William J. Schlueter, M.D. • Richard D. Schultz, M.D. • Michael H. Sketch, M.D. • Gamini Soori, M.D. • Janet S. Soori, M.D. • James F. Stanosheck, M.D. • Paul E. Steffes, M.D. • Robert E. Steg, M.D. • Charles Taylon, M.D. • Alan G. Thorson, M.D. • Robert G. Townley, M.D. • Louis F. Tribulato, M.D. • Carl J. Troia, M.D. • Robert N. Troia, M.D. • Sebastian J. Troia, M.D. • John A. Ursick, M.D. • Donald M. Uzendoski, M.D. • Jalleh Vafai, M.D. • Michael J. Weaver, M.D. • Gary H. Westerman, D.D.S. • Kathleen E. Wilken, M.D. • Mark P. Woodruff, M.D. • Jack R. Zastera, M.D. • Cecile M. Zielinski, M.D.

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Scientific Session Program
April 3-5 — Savery Hotel

SCIENTIFIC SESSION

The 1987 Scientific Session of the Iowa Medical Society will be held in conjunction with the Annual Meeting of the IMS House of Delegates April 3, 4 and 5 at the Hotel Savery in Des Moines. There will be a full day of scientific programming on Friday, April 3 beginning at 8:50 a.m. A 2-hour session on risk management is scheduled at 3 p.m. on Saturday, following the opening session of the House and reference committee hearings. On Sunday, the Scientific Session will conclude with a special panel discussion. The meeting is open to all IMS members and their guests.

PROGRAM COMMITTEE

John E. Tyrrell, M.D., Manchester, is chairman of the 1987 IMS Program Committee. Other members are Robert C. Brown, M.D., Iowa City; Craig D. Ellyson, M.D., Waterloo; Albert Norris, M.D., Cedar Rapids; Dwight G. Sattler, M.D., Kalona and John Sunderbruch, M.D., Davenport.



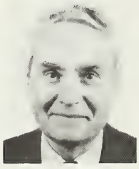
DR. TYRRELL



DR. BROWN



DR. ELLYSON



DR. NORRIS



DR. SATTLER



DR. SUNDERBRUCH

HOTEL RESERVATIONS

The Savery Hotel is headquarters for the 1987 IMS Scientific Session and Annual Meeting. All sessions will be located on the mezzanine level. Room reservations may be made by calling or writing the Reservation Department of the hotel (515/244-2151; 4th and Locust Street, Des Moines, 50309). Please ask that rooms be taken from the block reserved by the IMS. A special rate has been arranged for those attending the meeting.

PRESIDENT'S GREETING

I look forward to seeing old friends and making new ones at the 1987 IMS Scientific Session and Annual Meeting. The members of the Program Committee are commended for arranging an outstanding series of presentations.

During the past year, I have focused attention on the importance of good doctor-patient rapport and communication, and this is the general theme of this year's program.

Friday's session will begin with a full morning session on communicating with the patient — What do you tell the patient? How do you deal with the "negative" patient? The dying patient? The injured patient? It will conclude with a high-powered panel discussion on Sunday morning on "Communicating With the Public." In between, there will be excellent presentations on radiology technology; primary treatment of breast cancer; alternate delivery systems; risk management; and "What's New in Medicine" — Pearls and Perils!

The IMS is pleased to provide this continuing medical education program to its members. I know you will have a rewarding and enjoyable experience.

L. Dean Caraway, M.D., President
Iowa Medical Society

PROGRAM

FRIDAY, APRIL 3
SAVERY HOTEL

8:00 A.M. — REGISTRATION INFORMATION

EARLY BIRD CONTINENTAL BREAKFAST (Courtesy of Blue Cross/Blue Shield)



DR. CARAWAY

GENERAL SESSION

8:50 A.M. — WELCOMING REMARKS

L. Dean Caraway, M.D.,
Amana
President, Iowa Medical Society

COMMUNICATION

9:00 A.M. — COMMUNICATING WITH THE PATIENT

J. C. Noel Brown, M.D.,
Iowa City
Private Practice of Psychiatry

- What do you tell the patient — and how?
- The "Negative" Patient
- The Dying Patient
- The Patient with Communicable Disease
- The Injured Patient

11:45 A.M. — RECESS

12:00 NOON — LUNCHEON PROGRAM

ALTERNATE DELIVERY SYSTEMS: EXPECTATIONS OF BUSINESS AND GOVERNMENT — BALDRIDGE-BEYE MEMORIAL LECTURE — IOWA MEDICAL FOUNDATION

Glenn R. Markus,
Washington, D.C.
Principal/Health Policy Alternatives, Inc.



DR. RENNER

1:30 P.M. — PATIENT EDUCATION — FAMILY PRACTICE ANNUAL LECTURE — WATERLOO MEDICAL SOCIETY MEMORIAL

John H. Renner, M.D.,
Kansas City, Missouri
Director, Medical Development
St. Mary's Hospital

2:00 P.M. — THE EXPLODING TECHNOLOGY OF RADIOLOGY — ARTHUR ERSKINE MEMORIAL LECTURE

Edward E. Frey, M.D.,
Iowa City
Assistant Professor/
Department of Radiology
University of Iowa College of Medicine



DR. FREY

2:30 P.M. — A "LOGICAL" APPROACH TO THE PRIMARY TREATMENT OF BREAST CANCER

Peter R. Jochimsen, M.D.,
Iowa City
Professor and Vice Chairman,
Department of Surgery
University of Iowa College of Medicine

3:00 P.M. — RECESS

IMS Annual Banquet
Saturday, April 4, 7:00 p.m.
- Presentation of Awards
- Special Guests
- Special Entertainment

JOIN US!

3:30 P.M. — WHAT'S NEW IN MEDICINE: PEARLS AND PERILS

EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY

Eugene V. Kramolowsky, M.D.,
Iowa City
Instructor, Department of Urology
University of Iowa College of Medicine

INTERFERON

Charles E. Riggs, Jr., M.D.,
Iowa City
Assistant Professor,
Department of Medicine
University of Iowa College of Medicine

MONOCLONAL ANTIBODIES

Doctor Riggs

ALZHEIMER'S DISEASE

Bradley Hyman, M.D., Ph.D.,
Iowa City
Fellow, Behavioral Neurology,
Department of Neurology
University of Iowa College of Medicine

4:30 P.M. — QUESTIONS AND ANSWERS

5:00 P.M. — ADJOURNMENT

SATURDAY, APRIL 4
Savery Hotel



DR. HOTCHKISS
PRESIDENT-ELECT
AMERICAN MEDICAL ASSOCIATION

8:30 A.M. — HOUSE OF DELEGATES

1:30 P.M. — REFERENCE COMMITTEE HEARINGS

3:00 P.M. — SCIENTIFIC SESSION

IPMIT AT WORK

The three major operational areas of the Iowa Physicians Mutual Insurance Trust (IPMIT) will be dramatically portrayed; underwriting/insurability; claims review; risk management.

IPMIT officers, committee members, administrative personnel and defense counsel will participate in this informative presentation.

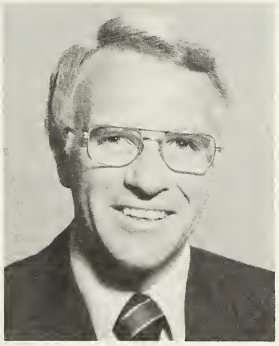
5:00 P.M. — ADJOURNMENT

6:00 P.M. — PRESIDENT'S RECEPTION

7:00 P.M. — ANNUAL BANQUET

SUNDAY, APRIL 5
Savery Hotel

7:30 A.M. — CONTINENTAL BREAKFAST WILL BE AVAILABLE (Courtesy of Blue Cross/Blue Shield)



DEAN BORG

8:30 A.M. — SCIENTIFIC SESSION

PANEL DISCUSSION: COMMUNICATING WITH THE PUBLIC

Dean Borg, Iowa City,
Moderator
Director of Information
University of Iowa Hospitals and Clinics

The Honorable Tom Swartz, Marshalltown
State Representative, District 72



TOM SWARTZ



MARY RICHE



JAY STOREY



DAVID YEPSEN

Mary Riche, Des Moines
President
Riche Associates/Public Relations Consulting Firm

Jay Storey, Newton
Vice President, Maytag Company/Personnel

David Yepsen, Des Moines
Columnist/'On Capitol Hill'
The Des Moines Register

William Hotchkiss, M.D., President-Elect of the American Medical Association, will also participate in the discussion, if his schedule permits

9:30 A.M. — ADJOURNMENT

10:00 A.M. — HOUSE OF DELEGATES/FINAL SESSION

CME CREDIT

The 1987 Scientific Session of the Iowa Medical Society is jointly sponsored by the University of Iowa College of Medicine. The University of Iowa College of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to sponsor continuing medical education for physicians, and designates this CME activity as meeting the criteria for 9 hours in Category I of the Physicians Recognition Award/ American Medical Association. In addition, the program has been approved for 10½ hours of prescribed credits by the American Academy of Family Physicians.

LUNCHEON

A dutch-treat luncheon is scheduled Friday noon. Glenn R. Markus of Washington, D.C. will discuss "Alternate Delivery Systems: Expectations of Business and Government." Mr. Markus is a principal in the firm of Health Policy Alternatives, Inc., which specializes in health care finance and related policy areas.

BANQUET

The Annual Banquet will be Saturday evening, April 4. Special entertainment has been arranged and IMS awards will be presented. A President's Reception will precede the banquet from 6 p.m. until 7 p.m.

AMA PRESIDENT-ELECT

William Hotchkiss, M.D., President-Elect of the American Medical Association, will be a special guest at the meeting. Dr. Hotchkiss is a thoracic surgeon from Chesapeake, Virginia. He is a Diplomate of the American Board of Surgery, and the American Board of Thoracic Surgery.

1987 SCIENTIFIC PROGRAM PREVIEW

Synopses of some 1987 Scientific Session presentations are included below:

THE EXPLODING TECHNOLOGY OF RADIOLOGY

The practice of radiology has undergone profound changes in the past decade. The phenomenal growth of technology, with regard to medical imaging, has affected nearly every medical specialty. This presentation will highlight the latest technological advances while emphasizing a cost effective approach to the radiology workups of common medical problems. — Edward E. Frey, M.D., Iowa City, Assistant Professor/Department of Radiology, University of Iowa College of Medicine.

ALZHEIMER'S DISEASE

Alzheimer's Disease has become a major health problem as the average age of the population of Iowa increases. Up to 15% of patients over age 65 are affected. In recent years, there has been a dramatic increase in our understanding of the anatomy and pathophysiology of this disease. Certain specific neurons are destroyed in Alzheimer's, especially in the basal forebrain, hippocampal formation and association cortices. Their loss contributes to the cognitive changes characteristic of the disease. — Bradley Hyman, M.D., Iowa City, Fellow Behavioral Neurology Department, University of Iowa College of Medicine.

PATIENT EDUCATION

Office and clinic-based physicians need to understand the importance of patient education in the office setting. Techniques and ideas will be discussed that give practical pointers physicians can use in their daily practice. Patient education and defense against malpractice, quackery, and lack of patient compliance will be covered. — John Renner, M.D., Kansas City, Missouri, Director, Medical Development, St. Mary's Hospital.

COMMUNICATING WITH THE PUBLIC

It is necessary for businessmen and doctors to communicate during this period when the entire state is struggling with the problem of how to control increasing medical costs. There is a strong possibility for each side to misunderstand the other's motives. On the important "big" issues, we almost always agree — e.g. "Keep government out of it and let free enterprise, market forces and competition control quality and pricing." — Jay Storey, Newton, Vice President, Maytag Company/Personnel.

Knowing the "Do's" and "Dont's" of dealing with the media and legislators should be helpful to physicians — David Yepsen, Des Moines, Columnist/'On Capitol Hill', Des Moines Register; Tom Swartz, Marshalltown, State Representative, District 72.

IPMIT AT WORK

A special presentation by the Iowa Physician Mutual Insurance Trust (IPMIT) from 3 p.m. to 5 p.m. on Saturday will be of interest to all physicians. The program will center on IPMIT's 3 major operational areas: underwriting/insurability; claims review; and risk management. Officers, committee members, administrative personnel and defense counsel will "role-play" to demonstrate how each works.

Participants will include:

- Dennis Walter, M.D., Des Moines
 Chairman, Board of Directors
- Warren Wulfekuhler, M.D., Mason City
 Chairman, Insurability/Underwriting Committee
- Clarence H. Denser, Jr., M.D., Des Moines
 Chairman, Claims Review Committee
- Pablo R. Recinos, M.D., Mason City
 Chairman, Risk Management Committee
- Tom Finley, Des Moines
 Defense Counsel

Physicians who are insured by IPMIT will receive 2 hours of credit toward IPMIT's educational requirement.

ACKNOWLEDGEMENTS

The physician members of the Iowa Medical Society give special thanks to the companies listed below for the educational grants provided to support the 1987 Scientific Session:

Ayerst Laboratories
Blue Cross/Blue Shield of Iowa
Eli Lilly and Company
E. R. Squibb & Sons
Parke-Davis Company
Roche Laboratories
Smith Kline & French Laboratories
The Upjohn Company

Appreciation is also extended to Blue Shield for the coffee functions, and U. of I. Foundation and College of Medicine for hosting the President's Reception.

1987 SCIENTIFIC SESSION REGISTRATION FORM

Please detach and return this form to
IMS HEADQUARTERS

	I PLAN TO ATTEND — PLEASE CHECK	NUMBER ATTENDING
The Scientific Session		
On Friday, April 3	_____	_____
On Saturday, April 4	_____	_____
On Sunday, April 5	_____	_____
Friday Luncheon Program ($10.50)	_____	_____
Saturday Annual Banquet ($25.00)	_____	_____

Advance payment for meal functions is welcomed and encouraged
Please make checks payable to the Iowa Medical Society

Name (Please print) _____

Address _____

Room reservations should be made directly with the Savery Hotel
Call 515/244-2151

University of Iowa Hospitals & Clinics

DRUG THERAPY REVIEW



Reynold Spector, M.D., Editor

BUMETANIDE, LOOP DIURETIC

BUMETANIDE (BUMEX®) is the latest of the loop diuretics to be marketed in this country. In this review, bumetanide is compared to the older loop agents (furosemide and ethacrynic acid) in order to determine its role as a therapeutic agent.

Chemically, bumetanide is 3-n-butylamino-4-phenoxy-5-sulfamoylbenzoic acid. Structurally it has similarities to furosemide in that it has a sulfamyl group and a carboxyl group in the same position on a benzene ring. It has few similarities to ethacrynic acid, which is an aryl oxoacetic acid derivative. Bumetanide is reported to be 40 to 50 times as potent as furosemide or ethacrynic acid when compared on a mg basis.[1]

Pharmacokinetics

Absorption of bumetanide following oral administration has been reported to be as low as 66% and as high as 90%.[2,3] Differences in reported values for bumetanide may be related to different methods of assay. However, all agree that the degree of absorption is not markedly affected in cardiac decompensation, cirrhosis, or renal failure. With such high rates of absorption, little or no adjustment in dosage is necessary when switching from intravenous to oral routes of administration. The degree of absorption of bumetanide from the GI tract is about twice that of furosemide or ethacrynic acid. This explains part of the greater potency of bumetanide over the older loop agents.

Bumetanide is 94 to 96% bound to plasma protein. Its volume of distribution is reported to be 0.12-0.28 l/kg.[2,3]

About half of a given dose of bumetanide is metabolized in the liver by oxidation of the n-butyl side chain.[4] These metabolites are inactive.

Bumetanide and its metabolites are excreted primarily by the kidneys. Biliary excretion of bumetanide and its metabolites accounts for only about 20% of an administered dose.[4] Excretion by the kidneys occurs primarily by active secretion by the organic anion system (p-aminohippurate system) in the proximal tubules. Very little is filtered by the glomeruli since protein binding is so high. Excretion can be diminished or delayed if competitive antagonists of secretion such as probenecid are present.[5]

Pharmacodynamics

Bumetanide is classified as a loop diuretic because its primary action is to inhibit the active cotransport of NaCl in the thick ascending limb of the loop of Henle.[6] It is also referred to as a high ceiling diuretic since it can produce a greater loss of sodium than the thiazide agents. At maximally effective doses, it can inhibit 20 to 25% of sodium reabsorption whereas at maximally effective dosages, the thiazides inhibit only 5 to 8% of sodium reabsorption. By acting on the loop to inhibit the reabsorption of NaCl, bumetanide causes the countercurrent gradient to be dissipated, thus blocking the ability of the kidneys to form a

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(Continued from page 127)

concentrated urine (i.e., one with an osmolality greater than that of plasma).[7] Since dilution of urine occurs when NaCl is reabsorbed in the loop, inhibition of the reabsorption of NaCl also decreases the ability of the kidneys to form a dilute urine (i.e., a urine with an osmolality less than that of plasma).[7]

Bumetanide exerts its effect on NaCl cotransport by acting on the luminal side of the tubules.[5] Since it is highly bound to plasma proteins, its free concentration in plasma is too low to be able to affect cells of the loop of Henle from the plasma side of the tubules. Bumetanide enters the tubular lumen by active secretion by the anion secretory system in the proximal tubules (p-aminohippurate system). Thus its activity and excretion can be decreased by agents that are also transported by this system such as probenecid.[8]

Bumetanide may also have some effect on proximal tubular reabsorption of sodium.[9] This is based on observations that the diuretic increases renal excretion of phosphate, a substance whose excretion is enhanced when proximal reabsorption of sodium is decreased.

Water loss is increased by bumetanide because the increased solute (NaCl) in the tubules retains water and also because the loss of the countercurrent gradient in the medulla decreases the reabsorption of water from the thin descending segment of the loop of Henle.

Potassium excretion is also increased by bumetanide. The diuretic agent inhibits the reabsorption of potassium by the thick ascending limb of the loop of Henle. In addition, bumetanide increases the exchange of potassium for sodium in the distal part of the nephron as a result of the increased delivery of sodium to this part of the nephron.

Bumetanide enhances renal excretion of calcium ions by inhibiting the reabsorption of this cation in the thick ascending limb of the loop of Henle.

An additional renal action of bumetanide is its ability to increase renal blood flow.[7] This occurs *via* a prostanoid mechanism.[10]

An important nonrenal action of bumetanide is its ability to dilate large veins and hence increase venous capacitance. This action also appears to be mediated *via* a prostanoid mechanism.

The actions of bumetanide, as stated above, are very similar to the actions of furosemide and ethacrynic acid.

Uses

Bumetanide is a very potent and effective diuretic agent. Usual doses are only 0.5-2 mg.[1] Following oral administration, the drug has a rapid onset of diuretic action (within 30 minutes). Maximal effect occurs within 60 to 90 minutes and activity is apparent for 5 to 6 hours.[1] The half-life of bumetanide is approximately 90 minutes except in the presence of renal disease where duration can be markedly prolonged.[9]

Bumetanide has been found to be an effective diuretic in the treatment of edema of cardiac, hepatic, and renal diseases. It has been found to be as effective as furosemide in the treatment of these conditions.[11]

In a few instances bumetanide has been found to be effective in the treatment of edema of cardiac failure when furosemide failed to produce a response.[12] On the other hand, furosemide has been reported to be effective when bumetanide was ineffective. The reason is not clear, but apparently on occasion each agent may serve as a useful replacement for the other.

While there are reports indicating that bumetanide is a useful agent in the treatment of hypertension, it has not been approved by the Food and Drug Administration for this use.

Toxicity

The adverse effects of bumetanide are also similar to those of furosemide and ethacrynic acid. Many of these are the result of excessive renal actions of the diuretic.

Rapid or excessive losses of sodium can result in hypotension or shock if extracellular and plasma volumes fall too greatly.

Hypokalemia can be produced as a result of excessive renal losses of potassium. When concentration falls below 3 mEq/l, muscular weakness and cardiac arrhythmias may result. Generally, reductions below 4 mEq/l but above 3 mEq/l occur without symptoms. However, in individuals also taking a cardiac glycoside, small decreases in the concentration of potassium increase the activity and hence toxicity

(Please turn to page 130)



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of the cardiac glycoside. In addition, in certain individuals small changes may initiate cardiac arrhythmias. The losses of potassium may be limited by increasing dietary intake of the cation or the administration of potassium chloride preparations or by concurrent use of a potassium sparing agent.

A systemic alkalosis may also occur. Since sodium chloride and water are excreted by bumetanide, but not bicarbonate, this ion is now dissolved in a smaller volume and hence its concentration increased. This is referred to as a contraction alkalosis.

Allergic responses to bumetanide include hives and rashes. The package insert states that "successful treatment with Bumex® following instances of allergic reactions to furosemide suggest a lack of cross sensitivity." However, in another section the insert states that "patients allergic to sulfonamide may show hypersensitivity to Bumex.®" Since both bumetanide and furosemide contain sulfonamide groups, a safer approach, should an allergic response occur to either compound, would be to use ethacrynic acid since this agent lacks a sulfonamide group.

Bumetanide decreases the renal excretion of uric acid. This is usually of no consequence. If, however, plasma levels are already elevated, a further increase could precipitate an acute attack of gout. Uric acid levels are increased because bumetanide competes with uric acid for secretion by the organic anion secretory system in the proximal tubules and also because of an enhanced proximal reabsorption of uric acid. The latter occurs when bumetanide reduces extracellular volume to the point where the proximal tubules are stimulated to increase sodium and water reabsorption to maintain volume. Uric acid apparently is carried along in the reabsorbate (bulk flow).

Ototoxicity, which is usually reversible if the drug is withdrawn, has been reported, especially when bumetanide is used in large doses in patients with renal failure. Furthermore, if

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used with other ototoxic agents such as the aminoglycoside antibiotics, irreversible ototoxicity may result. Similar findings have been reported with furosemide and ethacrynic acid. Since the diuretic potency of bumetanide is 40 to 50 times that of furosemide and ethacrynic acid on a mg basis, whereas its ototoxicity is only 5 times as potent, it is theoretically possible that bumetanide is less ototoxic than the other loop diuretics when used at equivalent natriuretic doses. Some support for this is derived from the studies of Tuzel.[13] He performed audiometer tests on patients before and after they took comparable diuretic doses of furosemide or bumetanide for 6 months and found that 6.4% of patients on furosemide had a 15 decibel or greater decrease in hearing whereas only 1.1% of patients on bumetanide showed such changes.

Older loop diuretics are generally less likely to cause hyperglycemia than the thiazides. This appears to be the case with bumetanide also.[14]

Bumetanide when used in large doses has been found to produce musculoskeletal pain occasionally in patients with chronic renal failure.[15]

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Summary

In summary, bumetanide, while a useful agent, does not appear to offer any major advantages over older loop diuretics. Its greater cost than furosemide indicates that it should not be used initially but reserved for instances where furosemide is ineffective or where there is a high risk of ototoxicity, as in the treatment of edema of chronic renal disease when large doses of loop diuretics are necessary. — H. E. Williamson, Ph.D., Professor of Pharmacology.

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Recent Highlights

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TWO EASTERN IOWA METROPOLITAN AREAS have been selected by the National Cancer Institute as sites of a study by the University of Iowa College of Medicine on how communities can help heavy smokers kick the habit. Cedar Rapids/Marion and Davenport/Bettendorf will serve as sites for the 9-year study, which will implement and evaluate community-based interventions for helping heavy smokers quit smoking for the long term, says **Paul Pomrehn Jr.,** Preventive Medicine and Environmental Health. The UI team will survey 6,000 residents of each community about their smoking habits late next summer.

IOWA IS PART OF A NATIONAL ORGANIZATION *for research into aging now that the state has officially formed an affiliate of the American Federation for Aging Research (AFAR).* ***Ian Smith,*** *Internal Medicine, was elected president of the Iowa AFAR affiliate this fall.* ***Kathleen Buckwalter,*** *Nursing, was elected vice president. This affiliate will provide small research grants, supported in part by public contributions, to help develop projects for future national funding. Research into aging is critical to understanding and improving the lot of an increasingly elderly population, says* ***Dr. Carl Eisdorfer,*** *national AFAR president.*

GENERAL INFORMATION ABOUT CANCER, cancer research programs and treatment protocols is available to Iowans through the new Cancer Information Service at the UI College of Medicine's Cancer Center. For information, call the toll-free number, 1-800-237-1225, weekdays from 8 a.m. to 5 p.m.

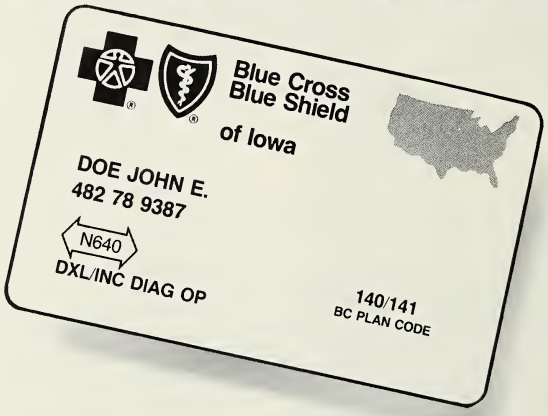
AT-A-GLANCE . . . Alfred Healy, *Pediatrics, has received the Ross Education Award from the American Academy of Pediatrics. Healy received the award based on his contributions to Project BRIDGE, an education program for health care professionals who serve disabled children and their families. . . .* ***Douglas Behrendt,*** *Surgery, has been appointed professor and chairman of the UI Division of Cardio-Thoracic Surgery. He is internationally known in the area of congenital heart transplantation. . . .* ***John Corson,*** *Surgery, has been named director of Vascular Surgery.*

ABOUT 60 NEW PHYSICIANS seeking locations for medical practices attended the tenth annual Family Practice Opportunities Fair in Des Moines last fall. This event, coupled with UI College of Medicine efforts, helped 66 new physicians locate in Iowa communities in the past year. In the same period, 88 Iowa family doctors retired, died or moved out of state, said **Roger Tracy,** Community-Based Programs. Tracy speculated the net loss of 22 family doctors was due to several factors, including the state's slow economy, an unfavorable professional liability climate and intensification of medical competition in some regions.

AGING POPULATION STUDY FINDINGS FROM *rural Iowa and urban Connecticut and Massachusetts are documented in a new National Institute on Aging Resource Data Book. Over 3,600 Iowans living in Washington and Iowa counties participated in the epidemiologic study. Iowa's "65-Plus Rural Health Study" began in 1981, conducted by* ***Robert Wallace,*** *Preventive Medicine and Environmental Health. The purpose of the project is to provide relevant information on health, disease prevention, behavior, chronic conditions, disabilities and institutionalization for representative samples of elderly persons living in communities. Among the findings are: about 1 of 5 elderly people are prone to sleep disturbances — women more often than men; and many older people lose hearing, but most do not use hearing aids.*

This report has been compiled by The University of Iowa Health News Service.

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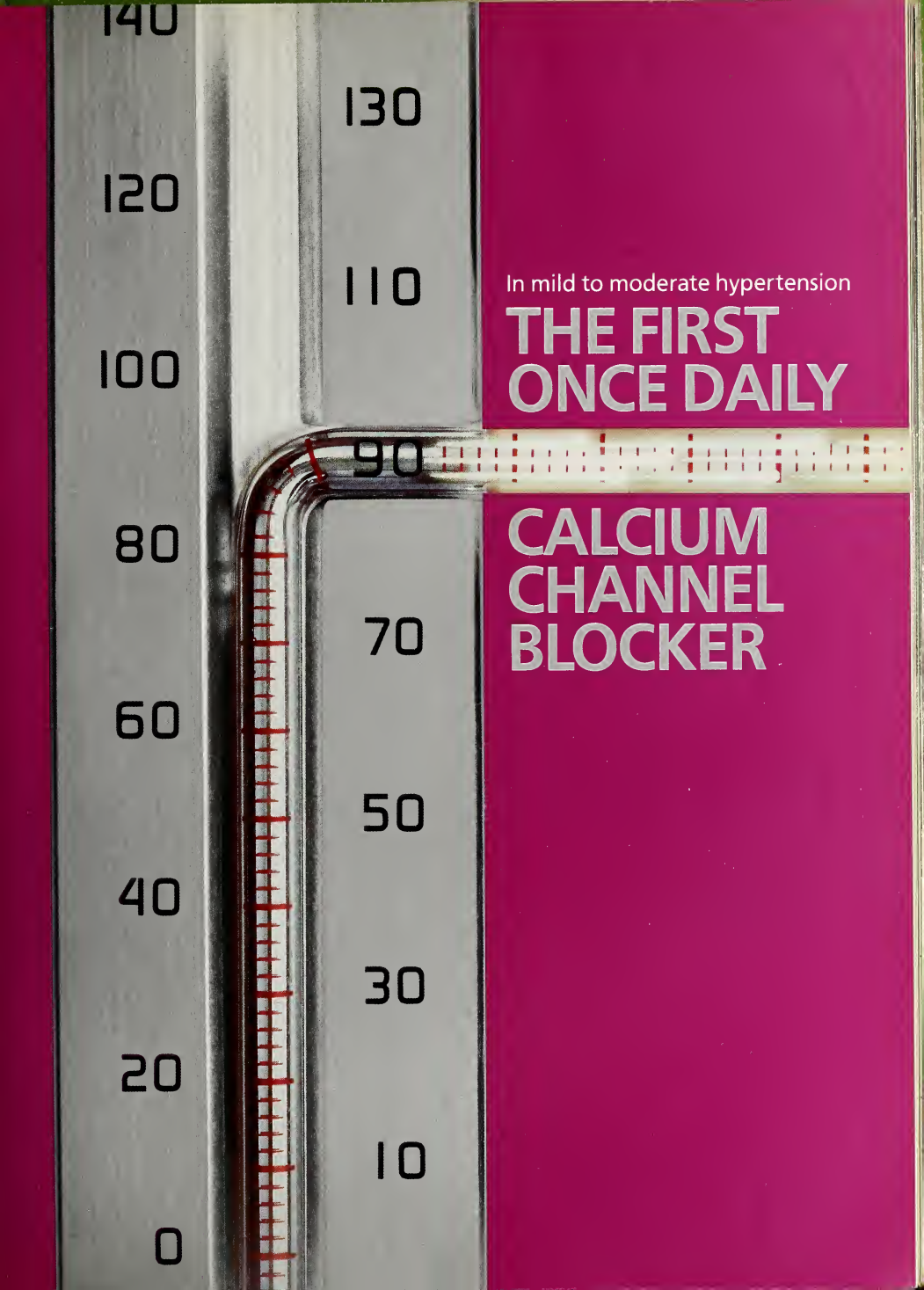
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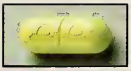
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JAMES B.
38, black male, heavy smoker. Prescribed a diuretic by another physician last year for hypertension.

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Presents with "smoker's cough." Workup reveals a BP of 150/107.

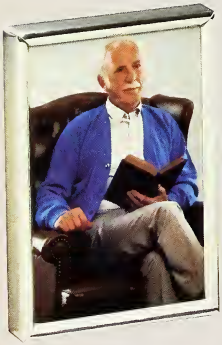
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ALICE W.
65, diabetic, overweight. Her BP has elevated to 190/98.

YOUR CONCERNS
She's on daily insulin.

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THOMAS G.
70, asthmatic. In the past, BP adequately controlled with 25 mg hydrochlorothiazide daily.

YOUR CONCERNS
Today patient presents with symptoms of gout. Workup reveals high uric acid level, low serum potassium, and BP elevated to 180/98.

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ISOPTIN® (verapamil HCl/Knoll) because...
— Unlike diuretics, ISOPTIN will not decrease serum potassium levels or elevate uric acid levels.
— Unlike beta blockers, ISOPTIN can be used safely in asthma and COPD patients.

JOHN K.
42, Annual physical uncovered diastolic BP of 102... confirmed on three successive office visits. Unresponsive to nonpharmacologic intervention.

YOUR CONCERNS
Salesman, spends many hours of his working day in car... total cholesterol level 300, HDL 35.

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WARNINGS: Heart Failure: ISOPTIN should be avoided in patients with severe left ventricular dysfunction (see DRUG INTERACTIONS). Patients with milder ventricular dysfunction should, if possible, be controlled before verapamil treatment. Hypotension: ISOPTIN (verapamil HCl) may produce occasional symptomatic hypotension. Elevated Liver Enzymes: Elevations of transaminases with and without concomitant elevations in alkaline phosphatase and bilirubin have been reported. Periodic monitoring of liver function in patients receiving verapamil is therefore prudent. Accessory Bypass Tract (Wolff-Parkinson-White): Patients with paroxysmal and/or chronic atrial flutter or atrial fibrillation and a coexisting accessory AV pathway have developed increased antegrade conduction across the accessory pathway producing a very rapid ventricular response or ventricular fibrillation after receiving intravenous verapamil. While this has not been reported with oral verapamil, it should be considered a potential risk. Treatment is usually D.C.-cardioversion. Atrioventricular Block: The effect of verapamil on AV conduction and the SA node may cause asymptomatic 1st degree AV block and transient bradycardia. Higher degrees of AV block, while infrequent (0.8%), may require a reduction in dosage or, in rare instances, discontinuation of verapamil HCl. Patients with Hypertrophic Cardiomyopathy (IHSS): Although verapamil has been used in the therapy of patients with IHSS, severe cardiovascular decompensation and death have been noted in this patient population.

PRECAUTIONS: Impaired Hepatic or Renal Function: Verapamil is highly metabolized by the liver with about 70% of an administered dose excreted in the urine. In patients with impaired hepatic or renal function verapamil should be administered cautiously and the patients monitored for abnormal prolongation of the PR interval or other signs of excessive pharmacological effects (see OVERDOSAGE).

Drug Interactions: Beta Blockers: Concomitant use of ISOPTIN and oral beta-adrenergic blocking agents may be beneficial in certain patients with chronic stable angina or hypertension, but available information is not sufficient to predict with confidence the effects of concurrent treatment in patients with left ventricular dysfunction or cardiac conduction abnormalities. Digitalis: Clinical use of verapamil in digitalized patients has shown the combination to be well tolerated if digoxin doses are properly adjusted. However, chronic verapamil treatment increases serum digoxin levels by 50 to 75% during the first week of therapy and this can result in digitalis toxicity. Upon discontinuation of ISOPTIN (verapamil HCl), the patient should be reassessed to avoid underdigitalization. Antihypertensive Agents: Verapamil administered concomitantly with oral antihypertensive agents (e.g., vasodilators, angiotensin-converting enzyme inhibitors, diuretics, beta blockers, prazosin) will usually have an additive effect on lowering blood pressure. Patients receiving these combinations should be appropriately monitored. Disopyramide: Disopyramide should not be administered within 48 hours before or 24 hours after verapamil administration. Quinidine: In patients with hypertrophic cardiomyopathy (IHSS), concomitant use of verapamil and quinidine resulted in significant hypotension. There has been a report of increased quinidine levels during verapamil therapy. Nitrates: The pharmacologic profile of verapamil and nitrates as well as clinical experience suggest beneficial interactions. Cimetidine: Two clinical trials have shown a lack of significant verapamil interaction with cimetidine. A third study showed cimetidine reduced verapamil clearance and increased elimination to 1/2. Anesthetic Agents: Verapamil may potentiate the activity of neuromuscular blocking agents and inhalation anesthetics. Carbamazepine: Verapamil may increase carbamazepine concentrations during combined therapy. Rifampin: Therapy with rifampin may markedly reduce oral verapamil bioavailability. Lithium: Verapamil may lower lithium levels in patient on chronic oral lithium therapy. Carcinogenesis, Mutagenesis, Impairment of Fertility: There was no evidence of a carcinogenic potential of verapamil administered to rats for two years. Verapamil was not mutagenic in the Ames test. Studies in female rats did not show impaired fertility. Effects on male fertility have not been determined. Pregnancy (Category C): There are no adequate and well-controlled studies in pregnant women. ISOPTIN crosses the placental barrier and can be detected in umbilical vein blood at delivery. This drug should be used during pregnancy, labor, and delivery, only if clearly needed. Nursing Mothers: ISOPTIN is excreted in human milk, therefore, nursing should be discontinued while verapamil is administered. Pediatric Use: Safety and efficacy of ISOPTIN in children below the age of 18 years have not been established.

ADVERSE REACTIONS: Constipation 8.4%, dizziness 3.5%, nausea 2.7%, hypotension 2.5%, edema 2.1%, headache 1.9%, CHF/pulmonary edema 1.8%, fatigue 1.7%, bradycardia 1.4%, 3° AV block 0.8%, flushing 0.1%, elevated liver enzymes (see WARNINGS). The following reactions, reported in less than 1.0% of patients, occurred under conditions (open trials, marketing experience) where a causal relationship is uncertain; they are mentioned to alert the physician to a possible relationship: angina pectoris, arthralgia and rash, AV block, blurred vision, cerebrovascular accident, chest pain, claudication, confusion, diarrhea, dry mouth, dyspnea, ecchymosis or bruising, equilibrium disorders, exanthema, gastrointestinal distress, gingival hyperplasia, gynecomastia, hair loss, hyperkeratosis, impotence, increased urination, insomnia, macules, muscle cramps, myocardial infarction, palpitations, paresthesia, psychotic symptoms, purpura (vasculitis), shakiness, somnolence, spotty menstruation, sweating, syncope, urticaria. Treatment of Acute Cardiovascular Adverse Reactions: Whenever severe hypotension or complete AV block occur following oral administration of verapamil, the appropriate emergency measures should be applied immediately, e.g., intravenously administered isoproterenol HCl, levarterenol bitartrate, atropine (all in the usual doses), or calcium gluconate (10% solution). If further support is necessary, inotropic agents (dopamine or dobutamine) may be administered. Actual treatment and dosage should depend on the severity and the clinical situation and the judgment and experience of the treating physician.

OVERDOSAGE: Treatment of overdosage should be supportive. Beta-adrenergic stimulation or parenteral administration of calcium solutions may increase calcium ion flux across the slow channel, and have been used effectively in treatment of deliberate overdosage with verapamil. Clinically significant hypotensive reactions or fixed high degree AV block should be treated with vasopressor agents or cardiac pacing, respectively. Asystole should be handled by the usual measures including cardiopulmonary resuscitation.

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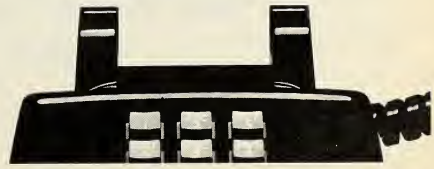
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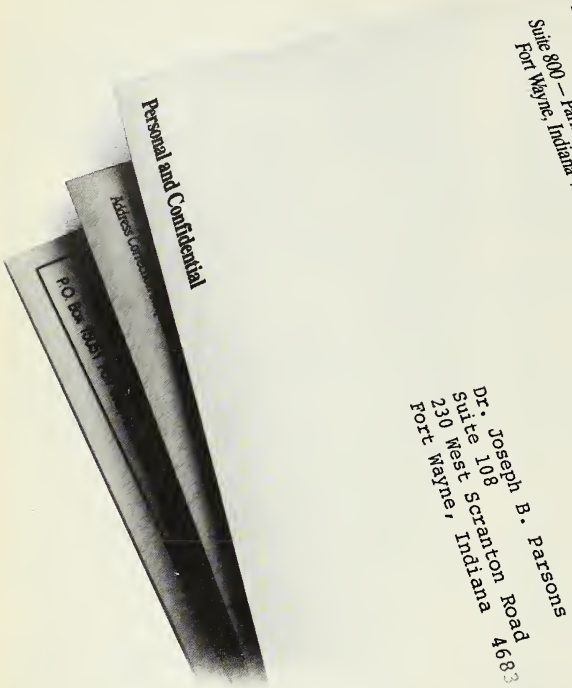
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Information of Interest

STATE DEPT. OF PUBLIC HEALTH

HOSPITAL LICENSURE BY SERVICE STUDY COMMITTEE

LEGISLATION PASSED by the General Assembly in 1986 required the Department of Public Health to conduct a study of hospital licensure by service. The mandate for the study is found in 1986 Iowa Acts, Chapter 1200:

"*Section 10.* The state department of health, in consultation with providers and consumers of rural hospital services, shall review actions taken in other states to license hospitals by service and shall specifically evaluate the potential utility and value in developing such a system as an option for licensing which may be applied to hospitals in lieu of current licensing and accreditation systems. The department shall report its findings to the General Assembly by January 1, 1987."

The Department convened a study committee, chaired by the president of the State Board of Health, to discuss these issues and make recommendations. The committee included the following providers, consumers, regulators and payers:

Lloyd Halm, D.O., Choirmon
Fort Dodge

William Coirns
Des Moines Generol Hospitol
Des Moines

Don Cordes
Cordes & Associotes
Des Maines

John Green, Jr., M.D.
Des Maines

Senotor Beverly Honnon
Anamosa

Chris Jensen
Blue Cross/Blue Shield of Iowo
Des Moines

Representative Sue Mullins
Corwith

Dano Petrowsky
Dept. of Inspectians & Appeols
Des Maines

Morlys Scherlin
Baum-Hormon Memoriol Hospital
Primghor

H. Gerald Smith
Mercy Hospital
Davenport

Dove Vellinga
St. Joseph Mercy Hospitol
Moson City

Meeting twice in November and December, 1986, the committee discussed the issues described by the legislature. The charge of the committee was to make recommendations, not to develop draft legislation.

Recommendation No. 1: "The committee recommends revision of the hospital licensing law to facilitate maximum flexibility for hospitals to provide needed services, while assuring that minimum quality standards are in place and assuring availability of services. The committee does not recommend licensure by service for Iowa hospitals."

When considering this recommendation, the committee acknowledged there are significant weaknesses in the current hospital licensing law and agreed the law should be revised or rewritten. They did not recommend licensure by service, because such a system would be unnecessarily regulatory, could reduce flexibility and act as a roadblock to innovation, and could pose a liability problem to a facility providing a service in an emergency for which it was not specifically licensed.

A survey of state licensure laws showed most states continue to license by facility rather than by service. The committee agreed licensure by facility is preferable to licensure by service for Iowa.

However, the committee did agree licensure by minimal standards, or establishment of standards for given services, would be desirable. The committee believed the establishment of state standards for specific services is especially important in light of the changing role and services of Iowa hospitals, and in light of Medicare's increased reliance on state standards for certification purposes. Public and third party payers are entitled to reasonable assurance established standards are being met by a facility choosing to offer specific services.

The committee emphasized hospitals would

(Please turn to page 138)

This information on public health matters is furnished and sponsored by the Iowa Department of Public Health.

STATE DEPARTMENT OF PUBLIC HEALTH

(Continued from page 137)

need to choose either to meet the standards or discontinue the service. For example, a small, rural hospital would have to meet standards for such services as obstetrics and surgery, or else terminate the service. The committee frequently discussed the importance of sanctions in assuring minimal standards are met.

In addition, the committee emphasized a facility should be able to choose to discontinue a service without jeopardizing its license. For example, choosing to discontinue obstetrics or surgery should not necessarily force a small, rural hospital to close.

Recommendation No. 2: "The committee recommends continued exploration of rural health initiatives and discussion of healthcare needs with appropriate persons in rural areas."

The committee discussed options that may be available to hospitals or communities in addressing rural healthcare needs. The committee recognized that with the establishment of minimum state standards for hospitals and hospital services, some hospitals may necessarily close.

Even without such standards, some hospitals might not be able to continue offering the full range of hospital services due to declining inpatient census and decreased revenues.

The committee emphasized communities should be given flexibility in determining how to meet their healthcare needs in the face of the changing healthcare arena. The committee recognized the need for further study of rural health initiatives relating to licensure, specifically including:

- Should there be a license for a facility which offers something other than a full range of hospital services?
- And, would such a facility be necessary, given the expansion of services in physician's offices and clinics?
- What is the role of emergicenters and should they be licensed?

The committee reported to the General Assembly in January 1987. Copies of the report of the Hospital Licensure by Service Study Committee are available from the Department of Public Health, Division of Health Planning and Development (515/281-4066).

January 1987 Morbidity Report

Disease	Jan. 1987 Tatal	1987 ta Date	1986 ta Date	Mast Jan. Cases Reported Fram These Counties
Aids	0	0	1	Nat Provided
Amebiasis	3	3	3	Black Hawk, Baane, Winnishiek
Brucellasis	1	1	0	Tama
Chickenpax	836	836	1257	Scattered
Campylabacter	6	6	15	Scattered
Cytamegalavirus	1	1	4	Linn
Eatans Agent Infection	12	12	0	Scattered
Encephalitis, viral	0	0	0	
Erythema Infectiasum	73	73	0	Scattered
Gastraenteritis (GIV)	2289	2289	2366	Scattered
Giardiasis	24	24	40	Scattered
Hepatitis, A	5	5	6	Black Hawk, Scatt, Wayne
Hepatitis, B	11	11	6	Scattered
Hepatitis, Nan A-B	2	2	0	Guthrie, Shelby
Hepatitis type unspecified	1	1	0	Buchanan
Herpes Simplex	77	77	115	Scattered
Herpes Zaster	0	0	0	
Histaplasmasis	1	1	2	Polk
Infectiaus mananucleasis	23	23	34	Scattered
Influenza, lab canfirmed	36	36	17	Scattered
Influenza-like illness (URI)	4470	4470	6948	Scattered
Legianellasis	1	1	3	Polk
Malaria	0	0	0	
Meningitis				
aseptic	1	1	1	Linn
bacterial	8	8	9	Scattered
meningacaccal	2	2	4	Linn
Mumps	19	19	4	Scattered
Pertussis	2	2	2	Chickasaw, Washingtan
Rabies in animals	13	13	11	Scattered
Reye Syndrame	0	0	0	
Rheumatic Fever	0	0	0	
Rubella				
(German measles)	0	0	0	
Measles	0	0	0	
Salmanellasis	10	10	18	Scattered
Shigellasis	3	3	1	Black Hawk, Buchanan, Waadbury
Toxic Shack Syndrame	1	1	3	Johnsan
Tuberculasis				
tatal ill	5	5	2	Scattered
bact. pas.	5	5	2	Scattered
Typhaid Fever	0	0	1	
Venereal diseases:				
Ganarrhea	265	265	394	Scattered
Chlamydia	252	252	266	Scattered
Syphilis	1	1	3	Polk

Other Nan-Repartable Diseases: Psittacasis — 1, Claytan, 1 Sac; Ratavirus — 3, Polk; Tularima — 1, Dallas, 1 Ringgald; Ureaplasma Urealyticum — 1, Polk.

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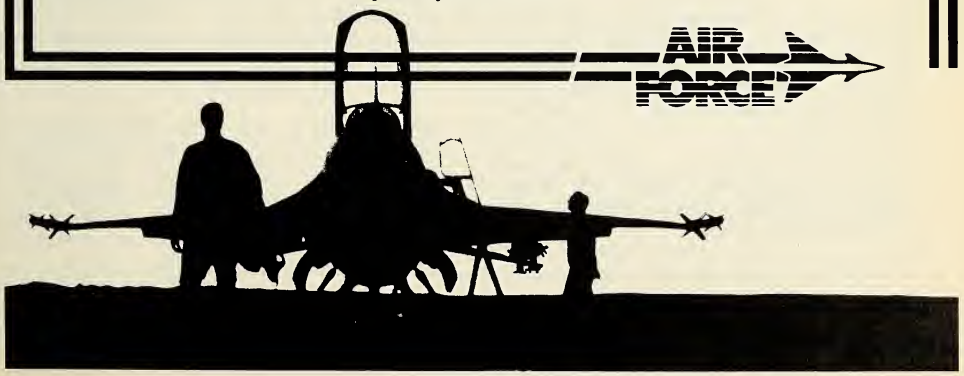
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Medical Developments

NEWS/PRODUCTS, PROGRAMS, ETC.

EYE CARE HELPLINE — Potentially blinding eye disease can be treated effectively if detected early, a fact that 1409 elderly Iowa residents have discovered through the National Eye Care Project (NECP). Volunteer Iowa ophthalmologists have uncovered 176 cases of cataracts, 16 cases of glaucoma, 38 cases of macular degeneration, and 7 cases of diabetic retinopathy, among elderly Iowa residents who have called the toll-free Helpline — 1/800-222-EYES (3937).

The public service, which offers medical eye care to the disadvantaged elderly at no out-of-pocket cost, is sponsored by the Iowa Academy of Ophthalmology and the Foundation of the American Academy of Ophthalmology. The NECP is available to U.S. citizens or legal residents, age 65 or over, who are not currently under the care of an ophthalmologist, and who have not seen one within the past 3 years.

NATURAL FISH OIL SUPPLEMENT — Parke-Davis has introduced a natural fish oil supplement rich in omega-3 polyunsaturated fatty acids. PROMEGA™ is concentrated fish-oil which when taken as part of a total dietary plan will help to reduce cholesterol and the risk of coronary artery disease. This dietary program is based on observations of Greenland eskimos, Japanese fishermen and Dutch villagers who consumed large quantities of certain fish rich in omega-3 fatty acids.

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For further information contact: **Riverview Hospital Association, 410 Dewey Street, Wisconsin Rapids, Wisconsin 54494. 715/423-6060, Ext. 410.**

RECENT BOOKS

Frohock, Fred M., 1986, *Special Care: Medical Decisions at the Beginning of Life*, University of Chicago Press, Chicago, Illinois, $19.95. A social scientist explores the moral and legal issues in intensive care of the neonate. Numerous arguments are presented regarding the dilemmas posed by concerns for quality of life.

Warren, James V., and Sobak-Sharpe, Genell J., 1986, *Managing Hypertension*, Doubleday and Co., Inc., New York, New York, $14.95. This handbook, written for the patient, constitutes a discussion of the complete program developed by the Cleveland Clinic.

DeYoung, H. Garrett, 1986, *The Cell Builders*, Doubleday and Co., Inc., New York, New York, $16.95. B-cell lymphoma and monoclonal antibodies (MAbs): a date with destiny. This is a story of MAbs and the possible hope for revolutionary treatment of cancer, severe arthritis and multiple sclerosis.

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News About Colleagues

ABOUT IOWA PHYSICIANS

Dr. Timothy H. Cook has opened an office for the practice of internal medicine in Fort Madison. Dr. Cook received the M.D. degree at the University of Tennessee College of Medicine; interned and served his internal medicine residency at the University of Michigan in Ann Arbor. . . . **John W. Colloton,** Director of the University of Iowa Hospitals and Clinics, was chosen chairman-elect of the Association of American Medical Colleges (AAMC). Mr. Colloton is only the second non-physician elected to the top leadership position of the AAMC during its 110-year history. . . . **Dr. Walter M. Block,** Cedar Rapids, has been named medical consultant for the Iowa Association for Children and Adults with Learning Disabilities . . .**Dr. Thomas A. Weingeist,** director of the Vitreoretinal Service of the Department of Ophthalmology at the U. of I. College of Medicine, has been appointed Professor and Head of the Department of Ophthalmology. Dr. Weingeist was chief of ophthalmology service at the Veterans Administration Medical Center in Iowa City from 1979-1984. He is on the editorial board of the JOURNAL OF THE AMERICAN ACADEMY OF OPHTHALMOLOGY.

(Please turn to page 145)

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Dr. Penumetsa B. Raju, Waterloo, was presented the 1986 community health award by the Community Mental Health Centers Association of Iowa. Dr. Raju was cited for developing an alliance between mental health and chemical dependency providers in the northeast Iowa area.

DEATHS

Dr. Adolph L. Sahs, 80, professor emeritus and retired head of the University of Iowa Department of Neurology, died December 6 at the University of Iowa Hospitals in Iowa City. Dr. Sahs received the M.D. degree and served his neurology residency at the U. of I. College of Medicine. In 1981, Dr. Sahs received the University of Iowa Foundation Distinguished Alumni Award. He was a member of the American Academy of Neurology, American Neurological Association, Congress of Neurological Surgeons and life member of the Iowa Medical Society.

Dr. C. Scott Linge, 61, Cedar Rapids, died December 26 at St. Luke's Hospital in Cedar Rapids. Dr. Linge received the M.D. degree at the U. of I. College of Medicine. He began family practice in Fayette in 1953, retiring in 1982. Dr. Linge was a fellow of the American Academy of Family Physicians and served as a volunteer physician on several missions to St. Jude's Hospital in St. Lucia, British West Indies.

Dr. Glenn J. Hruska, 70, Belmond, died December 27 at St. Mary's Hospital in Rochester, Minnesota. Dr. Hruska received the M.D. degree at the U. of I. College of Medicine. A World War II veteran, Dr. Hruska practiced medicine in Belmond for 37 years. He was a member of the Wright County Board of Health and Fellow of the American Academy of Family Physicians.



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EMERGENCY MEDICINE POSITION — For Emergency Physician who possesses excellent clinical and trauma skills within a group of 7 Emergency Room Physicians — located in beautiful northwest Wisconsin area. Position opening July, 1987. Please send C.V. to Dr. M. Jaghlit, 900 West Clairemont Avenue, Eau Claire, Wisconsin 54701 or call 715/839-4404.

PEDIATRICIAN — Excellent opportunity to join 4 pediatricians in a very active practice. Growing community, excellent hospital with teaching opportunities available. Close to Milwaukee. Contact John R. Guy, M.D., 1111 Delafield Street, Waukesha, Wisconsin 53118. 414/542-2536.

EMERGENCY ROOM PHYSICIAN — Immediate need for a full-time emergency physician in Sioux City, Iowa. Position involves coverage at 2 community hospitals with good medical staff support. This is an excellent job opportunity with attractive hourly compensation. ACLS/ATLS certification required. EM board certification/preparation desired. If interested, send C.V., or contact Paul Berger, M.D., FACEP, 5909 Pine View Drive, Sioux City, Iowa 51106 or call 712/276-3308.

FAMILY OR GENERAL PRACTITIONER — Position available for full or part time practitioner in free standing clinic affiliated with Mercy Health Center Emergency Room. Work as independent contractor, salary, 12-hour shifts. Contact M. Singsank, M.D., Mercy Health Center/Mercy Care, Asbury Square, Dubuque, Iowa 52001 or call 319/582-2273.

NEEDED — Board Certified Physician in Family Practice needed for position of Hospital Coordinator for a *large* Family Practice Group in Central Iowa. Salary is negotiable. Send resume to: Wiltfang-Paulson Clinic, 1129 Spencer, Grinnell, Iowa 50112.

EMERGENCY PHYSICIANS NEEDED — Chicago, Illinois. Full or part time. Prefer Board certified in emergency medicine or Board eligible, or at least three years full time experience. New contractual situation with new group will offer outstanding growth possibilities and excellent compensation. Take advantage of this exciting opportunity to live and work in dynamic Chicago. Send resume as soon as possible to Kathleen Babe, 9401 S. Sacramento, Evergreen Park, Illinois 60642 or call Kathleen Babe, 312/425-7797. Please don't delay in responding to this wonderful opportunity as there are only four positions available.

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DESCRIPTION. Inderal LA is formulated to provide a sustained release of propranolol hydrochloride. Inderal LA is available as 80 mg, 120 mg, and 160 mg capsules.

CLINICAL PHARMACOLOGY. INDERAL is a nonselective beta-adrenergic receptor blocking agent possessing no other autonomic nervous system activity. It specifically competes with beta-adrenergic receptor stimulating agents for available receptor sites. When access to beta-receptor sites is blocked by INDERAL, the chronotropic, inotropic, and vasodilator responses to beta-adrenergic stimulation are decreased proportionately.

INDERAL LA Capsules (80, 120, and 160 mg) release propranolol HCl at a controlled and predictable rate. Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours. When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL tablets. The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol, resulting from the slower rate of absorption of propranolol. Over a twenty-four (24) hour period, blood levels are fairly constant for about twelve (12) hours then decline exponentially.

INDERAL LA should not be considered a simple mg for mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose. When changing to INDERAL LA from conventional propranolol, a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval. In most clinical settings, however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect, INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate, systolic pressure and rate pressure product. INDERAL LA can provide effective beta blockade for a 24-hour period.

The mechanism of the antihypertensive effect of INDERAL has not been established. Among the factors that may be involved in contributing to the antihypertensive action are (1) decreased cardiac output, (2) inhibition of renin release by the kidneys, and (3) diminution of tonic sympathetic nerve outflow from vasomotor centers in the brain. Although total peripheral resistance may increase initially, it readjusts to or below the pretreatment level with chronic use. Effects on plasma volume appear to be minor and somewhat variable. INDERAL has been shown to cause a small increase in serum potassium concentration when used in the treatment of hypertensive patients.

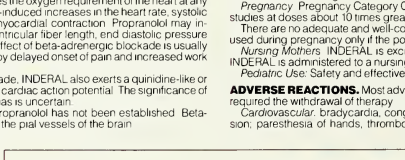
In angina pectoris, propranolol generally reduces the oxygen requirement of the heart at any given level of effort by blocking the catecholamine-induced increases in the heart rate, systolic blood pressure, and the velocity and extent of myocardial contraction. Propranolol may increase oxygen requirements by increasing left ventricular fiber length, end diastolic pressure and systolic ejection period. The net physiologic effect of beta-adrenergic blockade is usually advantageous and is manifested during exercise by delayed onset of pain and increased work capacity.

In dosages greater than required for beta blockade, INDERAL also exerts a quinidine-like or anesthetic-like membrane action which affects the cardiac action potential. The significance of the membrane action in the treatment of arrhythmias is uncertain.

The mechanism of the antimigraine effect of propranolol has not been established. Beta-adrenergic receptors have been demonstrated in the pial vessels of the brain.

Beta receptor blockade can be useful in conditions in which, because of pathologic or functional changes, sympathetic activity is detrimental to the patient. But there are also situations in which sympathetic stimulation is vital. For example, in patients with compensated diseased hearts, adequate ventricular function is maintained by virtue of sympathetic drive which should be preserved. In the presence of AV block, greater than first degree, beta blockade may prevent the necessary facilitating effect of sympathetic activity on conduction. Beta blockade results in bronchial constriction by interfering with adrenergic bronchodilator activity which should be preserved in patients subject to bronchospasm.

Propranolol is not significantly dialyzable.



INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension; it may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic. INDERAL LA is not indicated in the management of hypertensive emergencies.

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris.

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache. The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use.

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis, especially for treatment of exertional or other stress-induced angina, palpitations, and syncope. INDERAL LA also improves exercise performance. The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation. Clinical improvement may be temporary.

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock; 2) sinus bradycardia and greater than first degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL.

WARNINGS. CARDIAC FAILURE: Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely, or INDERAL should be discontinued (gradually, if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following abrupt discontinuance of INDERAL therapy. Therefore, when discontinuance of INDERAL is planned the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (e.g., chronic bronchitis, emphysema) — PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

MAJOR SURGERY: The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, e.g., dobutamine or isoproterenol. However, such patients may be subject to protracted severe hypotension. Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers.

DIABETES AND HYPOGLYCEMIA: Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes. In these patients, it may be more difficult to adjust the dosage of insulin.

THYROTOXICOSIS: Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol does not distort thyroid function tests.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case, this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS. *General:* Propranolol should be used with caution in patients with impaired hepatic or renal function. INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies.

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure. Patients should be told that INDERAL may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

Clinical Laboratory Tests: Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS: Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension.

Carcinogenesis, Mutagenesis, Impairment of Fertility. Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

Pregnancy: Pregnancy Category C. INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose.

There are no adequate and well-controlled studies in pregnant women. INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. INDERAL is excreted in human milk. Caution should be exercised when INDERAL is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

Cardiovascular: bradycardia, congestive heart failure, intensification of AV block, hypotension; paresthesia of hands, thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type.

Central Nervous System: lightheadedness; mental depression manifested by insomnia, lassitude, weakness, fatigue, reversible mental depression progressing to catatonia, visual disturbances, hallucinations; an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics.

Gastrointestinal: nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic: pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory: bronchospasm.

Hematologic: agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Autoimmune: In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous: alopecia, LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily. If patients are switched from INDERAL tablets to INDERAL LA capsules, care should be taken to assure that the desired therapeutic effect is maintained. INDERAL LA should not be considered a simple mg for mg substitute for INDERAL. INDERAL LA has different kinetics and produces lower blood levels. Retitration may be necessary especially to maintain effectiveness at the end of the 24-hour dosing interval.

HYPERTENSION — *Dosage must be individualized.* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic. The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved. The usual maintenance dosage is 120 to 160 mg once daily. In some instances a dosage of 640 mg may be required. The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks.

ANGINA PECTORIS — *Dosage must be individualized.* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three to seven day intervals until optimum response is obtained. Although individual patients may respond at any dosage level, the average optimum dosage appears to be 160 mg once daily. In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established.

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS).

MIGRAINE — *Dosage must be individualized.* The initial oral dose is 80 mg INDERAL LA once daily. The usual effective dose range is 160-240 mg once daily. The dosage may be increased gradually to achieve optimum migraine prophylaxis. If a satisfactory response is not obtained within four to six weeks after reaching the maximum dose, INDERAL LA therapy should be discontinued. It may be advisable to withdraw the drug gradually over a period of several weeks.

HYPERTROPHIC SUBAORTIC STENOSIS — 80-160 mg INDERAL LA once daily.

PEDIATRIC DOSAGE — At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use.

*The appearance of these capsules is a registered trademark of Ayerst Laboratories.

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1. INDERAL LA National Compliance Evaluation Program. Data on file. Ayerst Laboratories.
2. Ravid M, Lang R, Jutrin I: The relative antihypertensive potency of propranolol, oxprenolol, atenolol, and metoprolol given once daily. *Arch Intern Med* 1985;145:1321-1323.

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DISEASES AND SURGERY OF THE COLON AND RECTUM

A Monthly Commentary

IN THE PUBLIC INTEREST

CME and Quality Patient Care

"PATIENTS MUST HAVE the opportunity to have their illnesses diagnosed and treated according to the most up-to-date methods available." James Collins, M.D., Waterloo, Chairman, IMS Committee on Medical Education.

"The half-life of a physician's knowledge is about 4 years." Donald Lulu, M.D., Des Moines, Director of Medical Education, Mercy Hospital Medical Center.

These statements effectively summarize the reasons an increased emphasis is being placed on continuing medical education. In this era of rapid change in the practice of medicine, quality patient care is directly linked to how well a physician keeps up with new developments.

"Technological advances in medicine are sprouting so fast. There are things in use now that weren't even heard of 5 or 10 years ago," comments Dr. Lulu. "It's absolutely incumbent for physicians to keep up."

"AIDS is a good example of how rapidly new developments come along," adds Dr. Collins. "There are almost daily advances in our knowledge."

Obviously, those involved in planning and providing continuing medical education are responding to the escalating need for current information.

"In 1973, there were only 300 CME hours offered nationally. By 1983, 100,000 hours were being offered," relates Dr. Lulu.

Both physicians say there are many excellent ways physicians can keep current, including videotapes, cable television, medical journals, seminars, meetings and hospital teleconferences.

"A hospital must have a good, active CME Committee. The Committee's role is to identify problems in that hospital and gear CME programs to those problems. This brings CME close to home," states Dr. Collins.

Dr. Lulu says he, too, prefers soliciting hospital staff opinion about what CME programs to offer, and believes 2-way discussions are much better learning experiences than lectures.

He also believes physicians can get more bang for their CME bucks by attending programs closer to home.

"The midwest is an oasis of sanity for CME costs," he says.

Both physicians believe continuing medical education is absolutely necessary to maintain the high quality patient care provided by Iowa physicians.

"When physicians must spend money to acquire CME hours, they will seek the programs that will do them and their patients the most good," comments Dr. Collins.

"We need to think of this as getting knowledge — not hours," Dr. Lulu concludes.

March 1987

Iowa Medicine

PRESIDENT'S PRIVILEGE



ONCE AGAIN, THE TIME has come for a change in the Iowa Medical Society leadership ranks. By the time you read this, annual elections will have taken place and Dennis Walter will have assumed the post I have held for the past year.

I know you will join me in extending best wishes and pledging ongoing support for Dr. Walter during his term as IMS President.

Traditionally, the April IOWA MEDICINE is designated as the University Issue. It has become a valuable means of keeping up on the latest developments at the University of Iowa College of Medicine and University of Iowa Hospitals and Clinics.

Do you wonder about the people attending medical school today? An excellent article examines the motives, aspirations and demographics of today's University of Iowa medical students. Other articles explore new developments in patient care at University Hospitals and Clinics, outreach projects in occupational medicine and other exciting advancements. Dean John W. Eckstein, M.D., tells us about an innovative research facility under construction.

We salute our colleagues in Iowa City and the benefits all Iowans reap from the work done there.

It seems only a short time ago my term as president began. It has been a busy and productive year and we can be proud of all we have accomplished.

The past year has seen IMS involvement in many crucial health care matters. The IMS began participation in the Prescription Abuse Data Synthesis (PADS) project. In the person of William Eversmann, M.D., the IMs made a valuable contribution to the legislature's Liability and Liability Insurance Commission. The IMS emerged as a leader in the Iowa Alliance for Liability Reform. Increasing emphasis was placed on communication, risk management and other activities which will benefit our patients.

I extend my gratitude to my fellow physicians who helped make my term in office such a pleasant one. I am honored to have served as president of the Iowa Medical Society.

L. D. Caraway, MD

L. Dean Caraway, M.D.
President



MERCY HOSPITAL MEDICAL CENTER
DES MOINES, IOWA
PRESENTS

MERCY HEART DAY

MAY 13, 1987

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MERCY HOSPITAL MEDICAL CENTER
DES MOINES, IOWA

TOPICS:

"PREVENTIVE CARDIOLOGY: AN OVERALL VIEW"

"HYPERTENSIVE TREATMENT"

"IDENTIFICATION AND TREATMENT OF RISK FACTORS IN CHILDREN"

"PSYCHOLOGICAL ASPECTS OF CORONARY ARTERY DISEASE PREVENTION: DOES A TYPE-A PERSONALITY REALLY CAUSE HEART DISEASE"

"BENEFITS OF EXERCISE: EFFECT ON MORTALITY AND PHYSIOLOGICAL FUNCTION"

"LIPIDS DISORDERS"

PANEL DISCUSSION

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Researchers "Cluster" to Focus on Search for Knowledge

JOHN W. ECKSTEIN, M.D.
Iowa City, Iowa

New laboratories for interdisciplinary research will build on College of Medicine strengths, keep Iowa in the vanguard of new knowledge in all fields of medicine and bring new dollars to the state.



John W. Eckstein, M.D., Dean, University of Iowa College of Medicine

THE 1986 "UNIVERSITY ISSUE" of IOWA MEDICINE showed an architect's model of a future building and the structure site north of the medical laboratories.

Today the Human Biology Research Facility (HBRF) is a concrete reality. The massive structure, pushing its way skyward, may hold unprecedented potential for exciting scientific discoveries.

It also has great potential for infusing millions of "outside" dollars into Iowa's economy.

This remarkable building will not be completed and occupied for at least 18 months; but it is not too soon to share the visions of its creators with Iowa's medical community.

Focus on Flexibility

The HBRF will be 5 stories of flexible laboratory space serving interdisciplinary scientists researching human biology problems. The structure is between the medical laboratories and Children's Hospital, now called the Steindler Building.

The HBRF will create opportunity for interdisciplinary collaborators to cluster and focus on their area of research regardless of their "home" departments.

(Please turn to page 160)

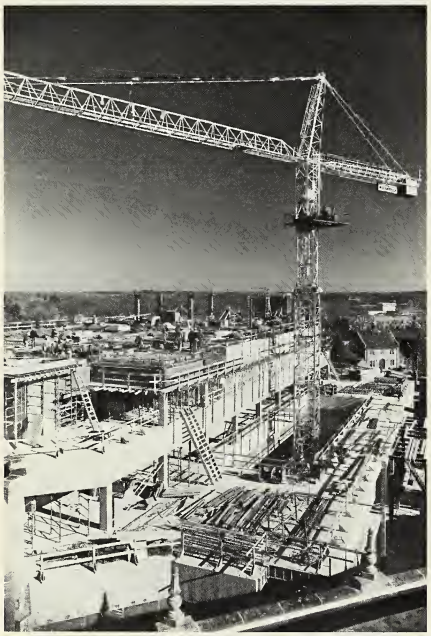
THE DEAN'S MESSAGE

(Continued from page 159)

Such proximity will enhance research productivity and capitalize on one of the University of Iowa's greatest academic traditions — low departmental walls. Some of the University's most important contributions to knowledge result from that philosophy — for example, speech pathology, which originated at Iowa through collaboration among psychologists, otolaryngologists, audiologists and educators nearly 50 years ago.

"Cores" Will Serve Clusters

Highly specialized facilities will be identified as "cores," constructed near flexible laboratory units. These include electron microscopy, mass spectrometry, computer-assisted image analysis, DNA and radiobiology technology and facilities for maintaining cell lines for tissue culture and production of hybridomas and monoclonal antibodies. These cores will be available to all University of Iowa investigators, but will be especially convenient to the clusters.



New Research Center — Tons of concrete and steel are taking shape as a unique research structure where interdisciplinary clusters of investigators will pursue fundamental problems in molecular biology, immunology and genetic engineering. This view looks north toward main entrance to Steindler Building (formerly Children's Hospital), right.

If a field of research becomes obsolete or substantially less productive, it will be reorganized elsewhere, and new clusters of scientists will come into the HBRF. Construction of the HBRF will make it possible to free space in surrounding buildings for other clusters — a working style rapidly replacing isolated labs.

These unique characteristics of the new HBRF will make it possible for the College of Medicine to recruit top people not thus far available for appointment.

However, the college does not expect to look completely beyond its current faculty for new discoveries and superior research talents. Significant work continues to come out of existing Iowa laboratories. Much or perhaps most HBRF space will be used by current Iowa faculty members who will reorganize and integrate their efforts for greater effectiveness.

Iowa Scientists Generate Own Support

HBRF research groups will be required to generate their own research support to cover direct research costs and provide support to the University's budget for indirect costs.

A special source of "outside" funds — $8 million in gifts from alumni and friends through the U. of I. Foundation — made it possible to plan and initially fund the HBRF. We are grateful for that support.

We expect the new HBRF to keep Iowa in the vanguard of new knowledge in molecular biology, immunology, neuroscience and genetic engineering — areas where the College of Medicine has achieved great recognition. The ultimate "payoff" will be application of that knowledge to new treatments and cures for human ills.

The HBRF will add to a record of which this state can already be proud — impressive numbers of research grants awarded in stiff competition among faculty from the nation's most prestigious institutions.

University Brings Billion to its State

Late in January, Drs. Francois Abboud and Gary Hunninghake (internal medicine), Michael Brody (pharmacology) and Arthur Spector (biochemistry) announced new and renewed research grants to the Cardiovascular Center totaling $30 million. This year well over one-third of the College of Medicine budget will come from $45 million in research and training grants awarded to faculty members. Less than 15% of the college budget is supported by tax dollars.

The University of Iowa has received a billion dollars in "outside" funds over the past 20 years and the College of Medicine has been responsible for a major portion of those dollars.

Such awards translate into salaries for faculty and supporting staff, materials, supplies and a great variety of services, most provided by Iowa vendors. Economists have determined each dollar spent by the University generates about $3.50 of economic activity in Iowa; the "multiplier-effect" of research awards is substantial and a powerful argument for generous support.

Wide Range of Research

Outstanding research is under way in such diverse areas as monoclonal antibodies for diagnosis and treatment, studying a gonadotropin hormone that controls production of sex hormones and cloning segments of the genetic substances of parasites. Following are other research proposals for which funding has been sought (from Iowa Lottery funds, among other sources). These projects are typical of those for which research teams will cluster in the HBRF:

- Coordination of research and commercial development of diagnostic and therapeutic procedures for human metabolic control. The goal is treatment and prevention of cardiovascular diseases, psychiatric problems, obesity, disorders of aging and brain metabolism, behavior and learning.
- Integration of research and development of commercial applications of molecular biology appropriate for Iowa, including biological products (hormones, growth factors, drugs), enzymes, microorganisms, understanding and treatment of disease.
- Expansion of our tissue culture and hybridoma facility to make its services available regionally to other universities and industry.
- Development of a center for research and treatment of neurological diseases.
- Development of a regional human DNA diagnostic facility to provide genetic diagnostic services and develop new DNA probes in collaboration with private biotechnology firms in Iowa.
- Developing a focus or applied and practical immunology, based on the highly regarded immunology group that emphasizes basic immunology and human medical immunology.
- Forming an inter-disciplinary group in molecular parasitology, based in Iowa's considerable existing strength in parasitology research, monoclonal antibody production, protein chemistry, electron microscopy and other related areas.

These are but a few of the goals the HBRF can make possible for the College of Medicine. Many of the clinical applications will be apparent to today's practitioners; many others cannot be imagined in light of knowledge available today. Nobody understands this better than physicians, whose lifetimes span medical and pharmaceutical developments few could have imagined in earlier years.

Surgeon General's Report on AIDS

C. Everett Koop, M.D., Sc.D., Surgeon General of the U.S. Public Health Service, has released a new report on Acquired Immune Deficiency Syndrome (AIDS). The report gives the latest information on AIDS, how it is transmitted, the relative risks of infection and how to prevent it.

The Surgeon General's report is being provided to state medical society members by the AMA Group on Science and Technology. To obtain a copy, call or write Beryl Schneiderman at the American Medical Association, 535 North Dearborn Street, Chicago, Illinois 60610, 312/645-4569.

Meet the Freshman Class

CAROL A. ASCHENBRENER, M.D., and
THOMAS C. TAYLOR
Iowa City, Iowa

How do today's medical students differ from yesterday's? Perhaps not all that much, judging from this latest report on admission characteristics of University of Iowa freshmen.

It's August and the auditorium is filled with 175 freshman medical students in their orientation session. Excitement, apprehension, confidence, anxiety and a little bravado show in their faces. Most are young (and looking younger each year). The beards and flowing hair of the 60s are rarely seen, but denim is still *de rigeur*. Who are these men and women who want to be physicians? Where do they come from? What are their dreams?

Twenty-two seems to be the magic age for entering medical school, although students as young as 18 and as old as 40 have enrolled in the last 10 years. The median age on entrance has increased slightly from 22.0 in 1977 to 22.4 in 1986. This year the mean age is 23.4 years; but 23 students are over 25 and 8 are over 30.

Some of the increase in median age is due to a tendency to complete college before beginning medical school, a trend endorsed by the admissions committee and faculty. While 15-20% of those admitted during 1977-1982 entered before earning their baccalaureate degrees, that percentage dropped to 7.2% in 1983. This year, only 4 students enrolled after their third year of college, while 21 (12.1%) had some graduate work.

Although the vast majority of entering students are unmarried, early matrimony seems to be gaining popularity: 23.7% of 1986 freshmen were married, compared to 16.9-19.0% during 1980-83. Only 5 students in the last 4 entering classes have 3 or more children.

Women are a significant sub-group in each entering class. Their percentage increased from 22.4% in 1974 to a peak of 41.7% in 1981. This year, 30.3% of first-year students are women. Although there is no attempt to pre-determine class gender composition, the number of women students fluctuates roughly in proportion to the size of the female applicant pool. Women and men applicants are equally successful in gaining admission and have similar academic credentials. The number of underrepresented minorities has risen from 8 students in 1974 to 22 in each of the last 4 entering classes.

Families Well Educated

Iowa medical students come from well-educated families, with two-thirds of their fathers and nearly as many mothers having completed at least some college work. Nearly two-thirds of fathers and 39% of mothers are employed in business or professional occupations. The number of physician fathers is remarkably stable, with 12-13% each year; but only 4 students in the last 4 years had physician mothers.

(Please turn to page 163)

Dr. Aschenbrener is associate dean for medical student affairs and curriculum in the UI College of Medicine, where she is a member of the pathology faculty. Thomas Taylor is coordinator of admissions in the office of the dean.

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*After a 30-day trial with INDERAL LA, physicians reported that 90% of the patients would remain on INDERAL LA.

The one you know best keeps looking better

Please see next page for brief summary of prescribing information.

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BRIEF SUMMARY *(FOR FULL PRESCRIBING INFORMATION, SEE PACKAGE CIRCULAR)*

INDERAL® LA brand of propranolol hydrochloride **(Long Acting Capsules)**

DESCRIPTION. Inderal LA is formulated to provide a sustained release of propranolol hydrochloride. Inderal LA is available as 80 mg, 120 mg, and 160 mg capsules.

CLINICAL PHARMACOLOGY. INDERAL is a nonselective beta-adrenergic receptor blocking agent possessing no other autonomic nervous system activity. It specifically competes with beta-adrenergic receptor stimulating agents for available receptor sites. When access to beta-receptor sites is blocked by INDERAL, the chronotropic, inotropic, and vasodilator responses to beta adrenergic stimulation are decreased proportionately.

INDERAL LA Capsules (80, 120, and 160 mg) release propranolol HCl at a controlled and predictable rate. Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours. When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL tablets. The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol, resulting from the slower rate of absorption of propranolol. Over a twenty-four (24) hour period, blood levels are fairly constant for about twelve (12) hours then decline exponentially.

INDERAL LA should not be considered a simple mg for mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose. When changing to INDERAL LA from conventional propranolol, a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval. In most clinical settings, however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect, INDERAL LA has been therapeutically equivalent to the same dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate, systolic pressure and rate pressure product. INDERAL LA can provide effective beta blockade for a 24-hour period.

The mechanism of the antihypertensive effect of INDERAL has not been established. Among the factors that may be involved in contributing to the antihypertensive action are (1) decreased cardiac output, (2) inhibition of renin release by the kidneys, and (3) diminution of tonic sympathetic nerve outflow from vasomotor centers in the brain. Although total peripheral resistance may increase initially, it readjusts to or below the pretreatment level with chronic use. Effects on plasma volume appear to be minor and somewhat variable. INDERAL has been shown to cause a small increase in serum potassium concentration when used in the treatment of hypertensive patients.

In angina pectoris, propranolol generally reduces the oxygen requirement of the heart at any given level of effort by blocking the catecholamine-induced increases in the heart rate, systolic blood pressure, and the velocity and extent of myocardial contraction. Propranolol may increase oxygen requirements by increasing left ventricular fiber length and diastolic pressure and systolic ejection period. The net physiologic effect of beta-adrenergic blockade is usually advantageous and is manifested during exercise by delayed onset of pain and increased work capacity.

In dosages greater than required for beta blockade, INDERAL also exerts a quinidine-like or anesthetic-like membrane action which affects the cardiac action potential. The significance of the membrane action in the treatment of arrhythmias is uncertain.

The mechanism of the antimigraine effect of propranolol has not been established. Beta-adrenergic receptors have been demonstrated in the pial vessels of the brain.

Beta receptor blockade can be useful in conditions in which, because of pathologic or functional changes, sympathetic activity is detrimental to the patient. But there are also situations in which sympathetic stimulation is vital. For example, in patients with severely damaged hearts, adequate ventricular function is maintained by virtue of sympathetic drive which should be preserved. In the presence of AV block, greater than first degree, beta blockade may prevent the necessary facilitating effect of sympathetic activity on conduction. Beta blockade results in bronchial constriction by interfering with adrenergic bronchodilator activity which should be preserved in patients subject to bronchospasm.

Propranolol is not significantly dialyzable.



INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension; it may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic. INDERAL LA is not indicated in the management of hypertensive emergencies.

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris.

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache. The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use.

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis, especially for treatment of exertional or other stress-induced angina, palpitations, and syncope. INDERAL LA also improves exercise performance. The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation. Clinical improvement may be temporary.

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock, 2) sinus bradycardia and greater than first degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL.

WARNINGS. CARDIAC FAILURE: Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely; or INDERAL should be discontinued (gradually, if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following abrupt discontinuance of INDERAL therapy. Therefore, when discontinuance of INDERAL is planned the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (e.g., chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

MAJOR SURGERY: The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, e.g., dobutamine or isoproterenol. However, such patients may be subject to protracted severe hypotension. Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers.

DIABETES AND HYPOGLYCEMIA: Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes. In these patients, it may be more difficult to adjust the dosage of insulin.

THYROTOXICOSIS: Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol does not distort thyroid function tests.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case, this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS. *General:* Propranolol should be used with caution in patients with impaired hepatic or renal function. INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies.

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure. Patients should be told that INDERAL may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

Clinical Laboratory Tests. Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS: Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

Pregnancy: Pregnancy Category C. INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose.

There are no adequate and well-controlled studies in pregnant women. INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers: INDERAL is excreted in human milk. Caution should be exercised when INDERAL is administered to a nursing woman.

Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

Cardiovascular: bradycardia, congestive heart failure, intensification of AV block, hypotension; paresthesia of hands, thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type.

Central Nervous System: lightheadedness; mental depression manifested by insomnia, lassitude, weakness, fatigue, reversible mental depression progressing to catatonia, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics.

Gastrointestinal: nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergy: pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory: bronchospasm.

Hematologic: agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Auto-Immune: In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous: alopecia. LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily. If patients are switched from INDERAL tablets to INDERAL LA capsules, care should be taken to assure that the desired therapeutic effect is maintained. INDERAL LA should not be considered a simple mg for mg substitute for INDERAL. INDERAL LA has different kinetics and produces lower blood levels. Retitration may be necessary, especially to maintain effectiveness at the end of the 24-hour dosing interval.

HYPERTENSION—*Dosage must be individualized.* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic. The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved. The usual maintenance dosage is 120 to 160 mg once daily. In some instances a dosage of 640 mg may be required. The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks.

ANGINA PECTORIS—*Dosage must be individualized.* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three to seven day intervals until optimum response is obtained. Although individual patients may respond at any dosage level, the average optimum dosage appears to be 160 mg once daily. In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established.

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS).

MIGRAINE—*Dosage must be individualized.* The initial oral dose is 80 mg INDERAL LA once daily. The usual effective dose range is 160-240 mg once daily. The dosage may be increased gradually to achieve optimum migraine prophylaxis. If a satisfactory response is not obtained within four to six weeks after reaching the maximum dose, INDERAL LA therapy should be discontinued. It may be advisable to withdraw the drug gradually over a period of several weeks.

HYPERTROPHIC SUBAORTIC STENOSIS—80-160 mg INDERAL LA once daily.

PEDIATRIC DOSAGE—At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use.

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REFERENCES:

1. INDERAL LA National Compliance Evaluation Program. Data on file, Ayerst Laboratories.
2. Ravid M, Lang R, Jutrin I: The relative antihypertensive potency of propranolol, oxprenolol, atenolol, and metoprolol given once daily. *Arch Intern Med* 1985;145:1321-1323.

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Except for a slow increase in women in business and professional occupations and a shift from agricultural to service and trade occupations for the fathers, employment characteristics of students' parents have not changed over the last decade. The proportion of mothers who are homemakers dropped from 48.3% in 1980 to 39% this year. Family income, estimated by students, has increased steadily from a median of $24,100 in 1977 to $40,000 in 1986. During the last 3 years, the rise in mean family income exceeded the inflation rate.

Students still come from a variety of hometowns, with little change in demographic distribution. While the number from towns of 1,000 or fewer has remained stable at about 12%, the number from towns of 1,000 to 5,000 has risen from 16.7% to 20.2%. The increase in students from cities of over 300,000 (9% to 14.4%) partially reflects the greater number of students in the Educational Opportunities Program, many of whom come from metropolitan areas.

Most of our 1986 freshmen are Iowans, from 39 Iowa counties. Many (84) attended one of the 3 regent universities; others attended 59 other colleges and universities. It is not surprising most majored in science (78.3%). Other college majors include agriculture, anthropology, mathematics, engineering, music, nursing and psychology.

Diverse Interests

The science-major concentration hides incredible diversity revealed by the students' academic minors, extra-curricular activities and talents. Several are professional musicians; others are accomplished athletes, dancers and writers.

Students with research experience made up 49.1% of the 1977 class. This increased to 55-58% of the next 5 classes and 66.3% of the 1983 entering class. About 50% of Iowa medical students participate in a research project during medical school and 31.4% write a research paper for publication. Students report participating in 2 or 3 clubs or organizations each; one-third have held or run for elective office in student government.

Thoughts of becoming a doctor emerged mostly during teenage years, although some students report thinking of a medical career in their very early years. Others did not consider it until their mid-20s. The average age at which they firmly decided on medicine increased from 18.6 years in 1977 to 19.5. Almost 75% seriously considered another profession.

The largest group (23-28%) decided to apply for admission to The University of Iowa College of Medicine during their junior year of college, when most students across the country begin the application process. The average number of schools applied to ranged from 3.3 to 3.9, with 63 students applying only to The University of Iowa.

Factors Influencing Choice

Asked to rank factors influencing their selection of a medical school, each of the last 10 classes said the general reputation of the medical school was most influential. In 1982, the cost of education displaced the quality of the faculty as second-most influential factor, but the school's location has been a consistent third choice for many years. Students already enrolled in the Iowa College of Medicine were cited as the top sources of information about the school, with other physicians and University of Iowa bulletins sharing the second position. This highlights the critical role practicing physicians play in recruiting young men and women of excellence.

Each new student is asked to rank objectives of medical students. *Acquiring practical knowledge of clinical medicine* has been first choice for over 10 years. Second and third places are split by *preparation for primary care practice* and *acquiring knowledge of the basic medical sciences. Preparation for research and teaching* is listed last by most classes.

Ranking top on the list of skills and abilities for success in medical school are *ability to establish relationships with patients, knowledge of treatment* and *diagnostic skill.* Consistently last are *ability to carry out research* and *previous knowledge of social science.*

Each year, entering students are asked about their career plans. All classes have ranked *helping other people* as the most satisfying. Obviously, that aspect of medical practice is likely to be undiminished even with more economic and regulatory constraints. Second and third choices are *dealing directly with people* and *challenging and stimulating nature of work.* Next to the bottom of their list is *earning a good income.*

(Please turn to page 164)

Specialty Interests

Rankings of factors students might consider in selecting a specialty show strong agreement from class to class. Students entering medical school believe they will choose a specialty that will *allow them to know their patients well*, and *provide them with challenging diagnostic problems*. They want *to be appreciated by their patients* and to *work as a member of a health care team*. They are unconcerned if they *face only a few emergency situations* or *see a limited number of different cases*. *Living in an urban area* is not a highly rated consideration.

Family practice has been the specialty most often named by entering students, but its popularity has slowly declined from 45% of the 1977-81 entering classes to 24.7% in 1983 and 18.6% in 1986. Choices change as students progress through medical school, for about 35% of Iowa's graduating students continue to enter family practice. Interest in internal medicine has remained steady at 12-13.5%, with some fluctuations. Surgery has increased in popularity from 12.9% in 1977 to 20.3% in 1986 when it moved ahead of family practice.

About 14.5% list pediatrics and 4.1% obstetrics-gynecology as first choices. Whatever specialty they choose, most students anticipate participating in a partnership or group practice. Between 15-20% of most classes expect to combine teaching or research with their medical practice, a figure consistent with that reported by graduating students.

Who goes to The University of Iowa College of Medicine today? The same well-motivated, principled young men and women from well-educated Iowa families who have for decades. The consistency in values and career priorities is cause for optimism because it suggests the best and brightest recognize the practice of medicine still promises a lifetime of satisfying, challenging and meaningful work. University of Iowa medical students share the attitudes and values of practicing Iowa physicians, who will find them valuable colleagues.

Four University of Iowa medical students discuss their future plans and comment on why they chose the medical profession —

A LONG LINE OF PHYSICIANS

Bill Jongewaard is interested in a small town family practice, but he's not sure his Kossuth County hometown of Wesley will be there. Wesley (pop. 500) is struggling for survival.

"It's sad to go back," he said. "It was the greatest place in the world to grow up." Bill's dad, Robert Jongewaard, M.D. ('46), is the town's physician — something few towns the size of Wesley can claim to have. Bill's brother, Richard Jongewaard, M.D. ('73), practices in Sioux Center.

The Jongewaards come from a long line of physicians. Bill's great-aunt Jean Jongewaard put all her siblings through medical school and entered medical school herself at age 37. All three Drs. Jongewaard practiced as missionaries in India, where both Bill's parents were born.

"When I graduated from high school, I said I'd never go to medical school," Bill said. "I didn't think I could make it." So far, he has survived 3 semesters.

His father, whose solo practice demands he always be on call, has warned him he'll have little time of his own. Bill's brother, Richard, who shares a family practice with 3 physicians, advised him to guard his days off.

"I got into medical school off the alternate list," Bill said. "And the first day I couldn't believe I was here. People wonder, 'How can you put in the hours?' But if you like what you're doing, it's easy. Right now I'm really tired, but I'm excited, too. We just got on wards and I saw my first patient last Thursday."

A member of the Evangelical Free Church, Bill was raised in a large, devoutly religious family. He takes Sundays off. "Sunday is the Lord's gift to me. If He rested on the seventh day, who am I not to rest?" he asks with a grin.

Throughout high school, Bill considered be-

coming a teacher and a coach. He attended 2 small colleges with religious orientations before graduating from the University of Iowa in 1983.

He took a year off to deliver recreational vehicles across the country and spent the summer of 1984 helping build Wesley's new grain elevator.

Bill feels he learned compassion following his dad on rounds.

"He's the ultimate helper," Bill says. "He'll ask, 'What can I do to help you? You need someone to hold this board? Pound a few nails?' He pitches in and does whatever needs doing. He doesn't care how menial the job is."

Bill's not sure about a specialty, but it might be family practice. "That's what I'm used to," he says.



ERIC EVANS, M3



TIM MURRAY, M1



BARBARA BLODI, M4



BILL JONGEWAARD, M2

"WHERE CAN I DO THE MOST GOOD?"

Before he enrolled in the College of Medicine, 33-year-old Eric taught science for 5 years in a Cedar Rapids alternative high school for dropouts. Not certain he was on the right path and wishing to "cover his bets," he spent his first 2 years as a medical student on sabbatical leave from teaching.

Keeping open his options in education, Eric hopes to take comprehensive exams for a second master's degree, this one in medical administration, late this spring. He holds an M.A. in science education.

"In a societal sense, I wonder where I could do the most good," he says, "I have a lot of guilt feelings about leaving teaching. It means a lot to me and it's been shamefully neglected in this country."

While in medical school, he has substitute taught for a friend on paternity leave from a high school classroom and is an occasional guest lecturer in University of Iowa undergraduate science courses. "I love to teach and miss it a good deal," he says.

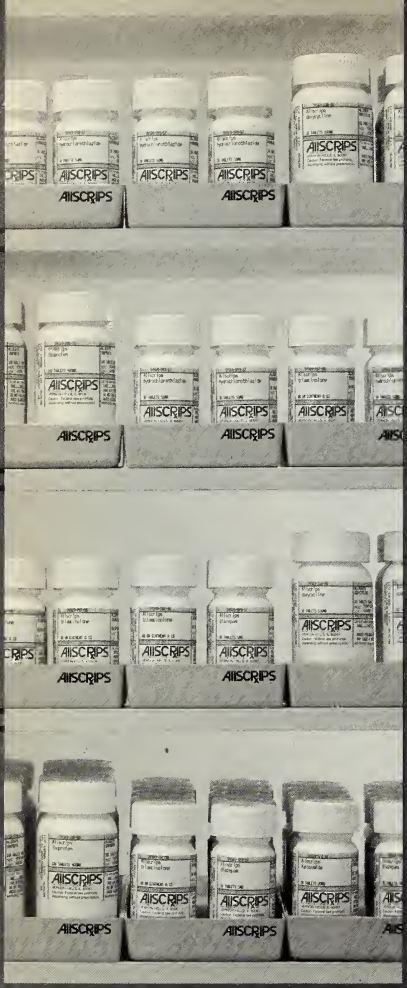
He may combine careers in medicine and teaching with a specialty in family practice or public health with an emphasis in health education. He's also interested in cardiology, but fears he may have let that door close by not making up his mind earlier.

Eric looks forward to a time when he can renew his interests in gardening, Hawkeye football and basketball, coaching baseball and softball, writing, computers and word-processing programs, canoeing, guitar and photography.

"That seems like another life now," he said. "From what I hear about residency programs, I expect the next 2 years of my life to be the most strenuous yet."

"I still might go back to secondary education," he said, only half-jokingly. "I don't know who would be interested in hiring me, though. With 2 master's degrees and an M.D., I'd be priced a little beyond the typical salary schedule."

(Please turn to page 167)



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THE SATISFACTION OF EXTENDING LIFE

Five years ago, Tim Murray and his dad, a cattle buyer from Lawler, Iowa, went on a trip to St. Paul. On the road, his father's shoulder went numb and pain shot through his arm. They drove to a community hospital 9 miles away.

In the emergency room, Mr. Murray's heart failed and he began defibrillating. "He was flopping around. . . . I thought he was dead," Tim said. "I couldn't stand to watch, so I left." The attending physician revived his dad. There was no damage to the heart and his dad is doing well.

"That's why I want to be a doctor," Tim says simply. "I can't imagine any greater satisfaction than extending life. Can you imagine what a feeling that must be? Every time that doctor sees my dad, he's got to feel great."

Tim graduated in '84 with a double major in chemistry and biology from the University of Northern Iowa. He toured Europe twice with the University of Northern Iowa Men's Glee Club and did a year of graduate work in chemistry at the University of Iowa.

Deciding he "had no interest in talking to a test tube," Tim applied to medical school and has an interest in pediatrics and family practice.

Tim is not enjoying the hard-science bookwork that is the lot of the first-year medical student and is keen to begin his clinical experience. He appreciates how College of Medicine administrators "work hard to keep us informed and accommodate our needs," he says, and how "they listen to what we say."

He and his wife Margie, a cosmetologist, were married 2 weeks before he started medical school. Tim looks forward to having a large family, a career in family practice or pediatrics in a small Midwestern town and a dog.

"I like medicine, but I don't want it to be my life. I want it to be a part of my life."

FUTURE OPHTHALMOLOGIST HAS SEEN THE WORLD

Senior Barb Blodi is on the way to becoming the third ophthalmologist in her family. Her father, Frederick, has been on the University of Iowa Ophthalmology faculty for 32 years, headed the department for 17 of those years and is currently in Saudi Arabia doing research at the world's largest eye hospital. Her brother, Christopher, is an assistant professor on the University of Iowa ophthalmology faculty.

Barb's earliest goals were not in ophthalmology, and there was no family pressure in that direction. Her undergraduate degree is in political science and French. She spent her junior year at the Sorbonne in Paris. After graduation from the University of Iowa she enrolled at the Fletcher School of Law and Diplomacy at Tufts University, Medford, Mass. in 1980.

Emphasis there on economic theory — "so far removed from reality" — sent her looking for "something more practical." She began to attend public health classes at Harvard, which kindled her interest in medicine.

"I was 24 or 25 when I realized I wanted to be an ophthalmologist," she said. "My brother gave me some good pointers early on. He talked me into taking calculus in college and I'm glad he did. Dad didn't volunteer advice unless I asked him. He did help me when it came time to rank-order my choices for residency programs in ophthalmology."

Barb will do that residency at the University of Miami's Bascom-Palmer Eye Institute in 1988. She plans to take a year of general medicine residency following her graduation next month, but hadn't learned where she'd been "matched" as this journal went to press.

Barb speaks French, German and some Spanish. She wrote "A Perspective on Vietnam: An Interview with Doan Van Toai," *Fletcher Forum*, 1981, made an international presentation "Epidemiology of Ocular Disease in Senegal, West Africa" to the Helen Keller International Staff in Dakar, Africa, 1984 and has done eye research in Saudi Arabia. The well-travelled senior is looking forward to improving her Spanish in Miami.

"I'm ready to get on with my studies and practice in Miami, and to explore the ethnic differences there."

New Medical Services at University Hospitals

Every year, innovations in programs, technology and facilities at University Hospitals mean better health care for Iowans. This article discusses new developments such as improved bone marrow transplant procedures and the just-opened Ambulatory Surgery Center.

NEW PROGRAMS, TECHNOLOGY and facilities at University Hospitals mean new health care resources for Iowans.

One new program is the In Vitro Fertilization (IVF)/Gamete Intra-Fallopian Transfer (GIFT) Program. This program offers the possibility of pregnancy for couples diagnosed as infertile, some of whom have spent many years trying to have a child.

The program's team includes physician specialists in infertility, gynecology, genetics and anesthesiology; infertility nurses; the IVF laboratory director and assistants trained in IVF/GIFT procedures; a team of counselors who work with infertile couples; a financial counselor; ultrasound technicians; endocrinology laboratory personnel; pharmacists and operating room staff. Dr. Craig Syrop coordinates the program.

According to Dr. Syrop, 10-20 women a month will undergo the procedures. More than 100 couples have already enrolled.

Another new program, begun in 1986, can help some deaf children hear again.

The Department of Otolaryngology Head and Neck Surgery is performing cochlear electrode implants in certain children. These devices electrically stimulate the cochlear nerve through small wires implanted in the inner ear. A pocket-sized speech processor, worn outside the body, receives sound and generates electric signals to the electrodes, which are perceived by the brain as sound. Children must be at least 10 years old, have recognizable speech and be able to participate in the program after implantation.

New Type of Bone Marrow Transplant

Other pediatric patients at University Hospitals are benefitting from expansion of the Pediatric Bone Marrow Transplant Program. A new type of bone marrow transplant has opened the procedure to many more children — offering a possible cure for immune deficiency syndrome and several types of leukemia.

Pioneering the new method — called T-cell depletion — is Dr. Michael Trigg, who directs the program. "With T-cell depletion we can now offer a bone marrow transplant to any child with a parent, sibling or unrelated donor, who is at least a half match," said Dr. Trigg.

Without T-cell depletion, only donors who matched the patient perfectly could provide the best chance for a successful transplant. The new method opens the bone marrow transplant door for many more seriously ill children. The program has a national reputation; in recent months children from New York, Pennsylvania and Missouri have received bone marrow transplants at University Hospitals.

In October 1986, University Hospitals began using its latest weapon against cancer — a CL-2500 dual beam linear accelerator. This new unit is the only one of its kind in Iowa.

The new equipment provides radiation therapy for many types of superficial and deep-seated malignant tumors. The CL-2500 has 2 major advantages. It is more effective at delivering high levels of curative radiation while sparing surrounding normal tissues. Also, research findings have shown it can provide greater cure rates for some types of tumors.

Cancers treated with the CL-2500 include those of the uterus, bladder, prostate, colon, esophagus, pancreas, head and neck, breast and some lung and brain. About 400 persons a year will be treated with radiation from the CL-2500.

Increased Air-Care Helicopter Service

In June, 1986, the ability to respond to requests for emergency medical care and transportation was significantly upgraded with a new contract for the Air-Care Helicopter Service. The new contract stations complete flight and maintenance crews for both the primary Air-Care helicopter and a backup helicopter in Iowa City. Previous contracts stationed only one crew in Iowa City.

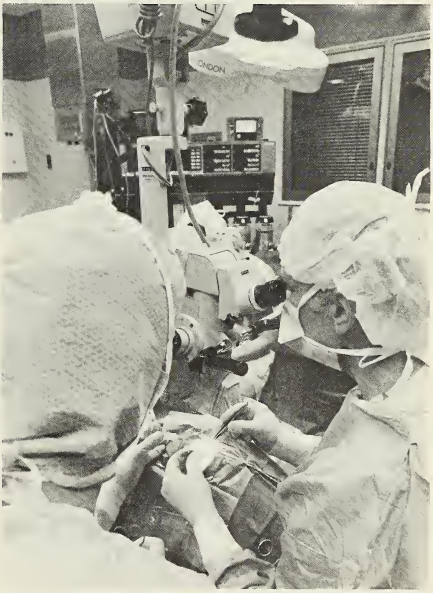
The immediate availability of the additional flight crew enables University Hospitals to respond to virtually every request for emergency medical transportation — within the bounds of weather considerations. From its start in April, 1979, through December, 1986, Air-Care has transported over 4,400 patients. The jet-powered helicopters cruise at 150 mph and can reach half of Iowa's population within 45 minutes.

New facilities at University Hospitals have increased patient care possibilities — includ-

(Please turn to page 170)



Recovery Area — The Stage 2 recovery area in University Hospitals Ambulatory Surgery Center has recliner chairs and televisions for patients recovering from anesthetic.



Ambulatory Surgery Center — Cataract surgery, performed by Hansjoerg Kolder, M.D., is one of the many surgical procedures performed in the new Ambulatory Surgery Center at University Hospitals



Treatment For Deep Tumors — This CL-2500 linear accelerator, the only one of its kind in Iowa, offers effective and efficient treatment for deep tumors.



Medical Cardiology Unit — Cardiologists Michael Kienzle, M.D. (left) and James Martin, M.D., and medical cardiology nurse Kim Slotterback analyze computer monitoring data.

ing opportunities for surgery without a hospital stay.

The new Ambulatory Surgery Center, opened in January, 1987, is a centralized area for ambulatory (outpatient) surgery. This consolidation of ambulatory surgery services in one area provides greater convenience and personalized service. Parents can accompany pediatric patients through most of their outpatient surgery experience.

Ambulatory Surgery Services

The new center has a patient reception/waiting area, 4 operating rooms, a 2-stage recovery area and space for support services. With up to 16 procedures scheduled daily, about 3,000 persons are expected to undergo surgery in the Ambulatory Surgery Center this year.

Surgeries performed in the area include removal of cataracts, tissue biopsies, tooth extractions, laparoscopies, eye muscle procedures, insertion of tubes in children's ears, vasectomy reversals and hand surgeries.

In 1986, new inpatient areas were opened for neurosurgery, burn and heart disease patients. The Division of Neurosurgery opened a new 47-bed inpatient unit for patients with neurosurgical disorders.

The Department of Internal Medicine opened 2 new units in January, 1986. The 10-bed Coronary Care Unit is for patients requiring intensive coronary care — including heart transplant patients. The 29-bed medical cardiology unit is for patients recovering from heart attacks or other cardiac problems.

The staff and patients of the Burn Treatment Center began 1986 in new accommodations. The new 16-bed unit includes a hydrotherapy room, special procedures room, physical therapy area and skin bank.


"Living in the city
is lonely enough...
with herpes it's like
solitary confinement."
ZOVIRAX®
(acyclovir)
CAPSULES
Prevent genital herpes
recurrences
month after month with
daily therapy.
(In controlled studies, recurrences were
totally prevented for 4 to 6 months in up to
75% of patients.)
*Please see last page of this advertisement for
brief summary of prescribing information.*

ZOVIRAX®
(acyclovir)
CAPSULES

Help free your patients from recurrences.

Daily therapy

Coping with genital herpes is rarely easy. For some, the worst part is the pain and discomfort of frequent attacks—month after month, year after year. For others, the emotional burden presents a more difficult problem, leading to social isolation, anxiety, and diminished self-esteem.

Prevent or reduce recurrences

Although your patients have to live with herpes, they shouldn't have to suffer. Daily therapy with ZOVIRAX CAPSULES can help free them from the cycle of recurrent genital herpes. For many, one capsule three times a day can suppress recurrences completely while on therapy.

Generally well tolerated

Daily therapy with ZOVIRAX CAPSULES is generally well tolerated. The most frequent adverse reactions reported during clinical trials were headache, diarrhea, nausea/vomiting, vertigo, and arthralgia.

The physical and emotional difficulties posed by genital herpes are unique for each patient. The frequency and severity of recurrent episodes, as well as the emotional impact of the disease, should be considered when selecting daily therapy with ZOVIRAX CAPSULES.

Please see brief summary of prescribing information on next page.



Prevent recurrences month after month*

ZOVIRAX®
(acyclovir)
CAPSULES

Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psychosocial difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week post-dose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: ***Teratogenic Effects:*** Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies,. the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤10 ml/min/1.73/m².

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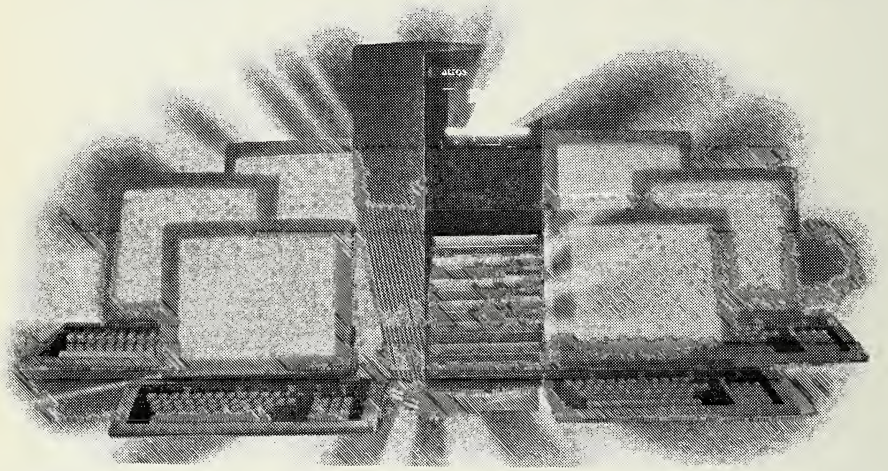
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QUESTIONS AND ANSWERS



CAUTIOUS OUTLOOK FOR U.S. HEALTH PROGRAMS, BUDGETS

Between the federal deficit and current budget-making processes, many national health programs may be painfully pinched, says Charles M. Helms, M.D., Associate Dean, Infectious Diseases Division, University of Iowa College of Medicine. Dr. Helms is back in Iowa City after a year in Washington, D.C. as a Robert Wood Johnson Health Policy Fellow.

What were you doing in Washington?

I was one of 6 health science faculty members chosen by the Robert Wood Johnson Foundation to acquire "hands-on" familiarity with federal health policymaking. I spent 3 months in a comprehensive orientation program under the auspices of the Institute of Medicine and the American Political Science Association. We visited key health policymakers in the Federal government, "think tanks" and interest groups. In the next 9 months we put what we'd learned to work on Capitol Hill. I served on the majority health staff of the Senate Committee on Labor and Human Resources, chaired by Orrin Hatch (R-Utah).

I gained additional insights from my wife's simultaneous experience as a program officer in the U.S. Department of Education, where she worked with the Fund for the Improvement of Post-Secondary Education. Our activities complemented each other and we found much information to share.

A few years ago new health policies and programs were being churned out by Congress and the Administrations. Now, even critical needs don't move anyone to quick action. Why?

Health initiatives such as Medicare and Medicaid came into being "from the bottom up" — congressional committees saw a need, wrote the authorizing legislation and funded the need.

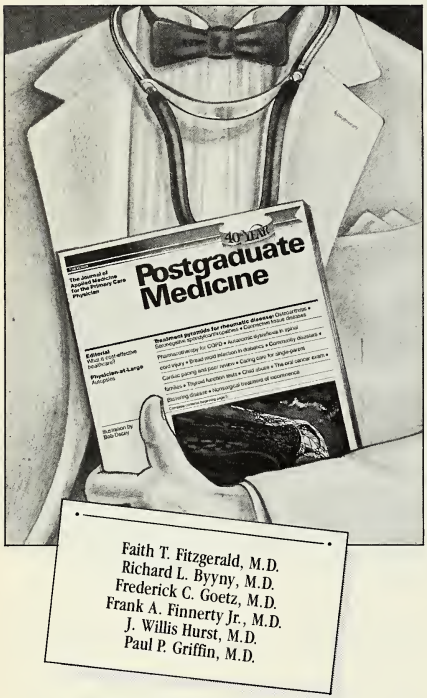
Today's policies and programs are determined by mechanisms intended to control federal spending "from the top down" — the President and the Congress wrangle to a figure that represents what they're willing to spend, and programs are allocated shares of the total. It takes a great deal of time.

Can you provide a thumbnail description of the process?

January: President sends budget to Congress. **February-March:** budget committees hold hearings in both houses and receive recommendations. **March-April:** budget committees work on plans to set spending totals and ceilings, which will require other committees to modify existing laws to cut spending or increase revenue. **Mid-April to Mid-May:** proposed budget resolutions go to House and Senate, conference committee irons out differences and arrives at binding budget resolution. **May-September:** House and Senate appropriation committees allocate funding to programs in their areas; authorization committees modify legislation to permit such appropriations; differences hammered out in conference committees ("reconciliation"). **Oc-**

(Please turn to page 174)

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QUESTIONS AND ANSWERS

(Continued from page 173)

tober: new U.S. fiscal year begins; the new budget is rarely ready.

What effect does the Gramm-Rudman-Hollings Act have on this process?

It further complicates it. Several major health programs are viewed by Congress as "entitled" programs for which yearly funding is considered "non-discretionary." They aren't subject to much reduction when across-the-board Gramm-Rudman-Hollings spending cuts are made in agency budgets.

Health programs exempt from mandatory cuts include Medicaid; Aid to Families with Dependent Children; the Feeding Program for Women, Infants and Children; food stamp and nutrition programs. Programs limited by Gramm-Rudman to maximum cuts of 2% include Medicare and federal healthcare programs for veterans, migrants, Indians and communities.

What about the programs not guaranteed protection?

Because "entitled" programs are protected under Gramm-Rudman-Hollings, "unentitled" health programs with "discretionary" funding will bear the brunt of any cutting. These discretionary programs account for only about 20% of the health budget. At serious risk are vital research and prevention programs of the National Institutes of Health, Centers for Disease Control, Health Resources and Services Administration, Food and Drug Administration, and the Alcohol, Drug Abuse and Mental Health Administration.

What do you believe will happen to health programs in the future?

They must continue to compete with defense and other national priorities for a share of the federal budget, so health programs will be shaped more by cost considerations than by society's need. This isn't likely to change until the federal deficit is significantly reduced.

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New Dimensions In Occupational Medicine

JAMES A. MERCHANT, M.D., Dr.P.H.
Iowa City

Much help is available to Iowa physicians and their farmer, agribusiness- and industrially-employed patients through a new emphasis on occupational medicine at the University of Iowa.

OVER THE PAST 4 YEARS new programs in occupational medicine have developed within the University of Iowa College of Medicine and University of Iowa Hospitals and Clinics. This initiative has been greatly assisted by U.S. Public Health Service training and research grants, development of an internal medicine clinic devoted to occupational medicine and a generous grant from the W. K. Kellogg Foundation.

There are needs for consultation and continuing education in occupational medicine in the agricultural Midwest. Agriculture is recognized as perhaps the most dangerous occupation due to accident fatality figures and respiratory exposure to a complex array of chemicals. Agribusiness involves many of the same hazards as manufacturing.

The small and midsized operation or plant employing fewer than 300 is frequently without in-house resources to deal with the medical effects of complex occupational and environmental exposures. A survey of more than 400 Iowa manufacturers by the University's Institute of Agricultural Medicine and Occupational Health (IAMOH) found 25-50% have needs in industrial hygiene, occupational medicine consultation and surveillance and occupational and general health education and promotion.

A New Program for Iowa

These findings and requests for assistance from the agricultural and industrial sectors led the IAMOH to develop a comprehensive occupational disease prevention and health promotion program involving faculty of the University of Iowa College of Medicine and other colleges. Last fall, the W. K. Kellogg Foundation funded the program's 3 major activities — formation of occupational training programs, development of continuing education programs in occupational health and development of an occupational health outreach program to Iowa agriculture and manufacturing, medical practitioners, hospitals, unions and other organizations.

New training programs include the nation's first graduate program for physical therapists

Dr. Merchant is professor of preventive medicine and environmental health, and internal medicine. He is director of the Institute of Agricultural Medicine and Occupational Health. He holds a Dr.P.H. degree.

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR THE MONTH OF APRIL 1987

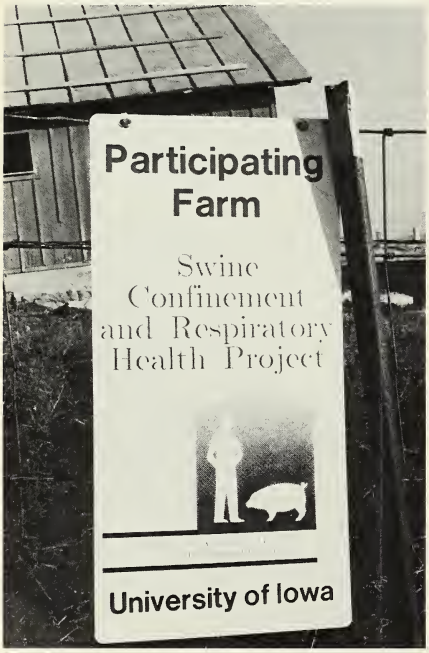
in ergonomics, a community program in occupational nursing, an occupational/agricultural medicine rotation for family practice and internal medicine residents and senior medical and veterinary medicine students and training support in agricultural medicine and hygiene.

These programs are being developed for health professionals — especially family practitioners — who provide more than 80% of occupational medicine services in Iowa. Such programs are also planned for agricultural organizations, industrial health and safety personnel and union health and safety representatives.

The occupational health outreach program will coordinate consultative services in occupational medicine and industrial hygiene, health education at the IAMOH and occupational medicine clinical services at University of Iowa Hospitals. We are recruiting additional industrial hygienists, physicians and health educators to establish the program this fall. The outreach program will provide a valuable laboratory for university occupational training programs and continuing education programs in participating industries and communities.



Mobile Laboratory — This University of Iowa mobile laboratory is used across Iowa to assess worker health and working environments by measuring such factors as pulmonary function and dusts and gases in the workplace.



Participating Farm — Over 110 Iowa farms in 14 counties display this sign to mark their participation in a University of Iowa swine confinement and respiratory health project.

Residency Combines Occupational, Internal Medicine

The University's initial training award in occupational medicine came from the National Institute for Occupational Safety and Health in 1982. Several residents have had training support under the grant and additional support from University Hospitals. The first graduate of Iowa's combined 4-year occupational medicine and internal medicine residency will complete his training this June.

Occupational medicine residents must complete at least one year of hospital-based clinical training, a master's degree in preventive medicine and environmental health and a practicum year that includes a 4-month rotation in a corporate (or other organized occupational medicine) program, research and additional clinical experience. Cooperating occupational medicine programs include General Motors, Standard Oil of Ohio, Union Pacific, Deere and Company, the U.S. Army's Rock Island Ar-

senal, United Auto Workers, U.S. Steel Workers and the AMA's Office on Public Health Policy. Residents participate in the weekly occupational medicine clinic. Residents in the combined occupational medicine-internal medicine program must fulfill all additional clinical requirements for the internal medicine boards.

Farm, Industrial Studies

The focus of occupational medicine research has been the IAMOH and the Division of Occupational and Environmental Health within the Department of Preventive Medicine and Environmental Health. The research includes several agricultural studies — assessment of the efficacy of various protective respirators and respiratory disease among swine confinement workers, poultry workers, grain handlers and Wisconsin dairy farmers. Industrial studies have included assessment of silica and irritant gas exposures in ferrous foundries, irritants in meat packing operations and asbestos exposures in the insulation and construction trades.

Special interest in occupational lung disease and a clinical link to the Division of Pulmonary Disease within the Department of Internal Medicine has resulted in much of the occupational research devoted to assessment of pulmonary effects of occupational exposures. The Division of Pulmonary Disease was recently awarded a Pulmonary Specialized Center of Research (SCOR) grant, to be directed by Gary Hunninghake, M.D., for research in occupational and immunological lung disease.

Useful Services for Employers, Workers

Internal Medicine's 3-year-old Occupational Medicine Clinic assesses whether a disease or condition is work-related, provides special diagnostic or toxicological testing, assesses occupational or environmental exposures, evaluates worker compensation claims and recommends preventive measures. Occupational assessments are coordinated with other clinics and services. Staff internists work with employees and employers to preserve jobs while providing health and safety recommendations and consulting with insurance carriers, rehabilitation program and health and safety representatives. Plant visits by an IAMOH industrial hygienist are becoming more common and are helpful in assessing exposures and recommending preventive measures.

Much progress has been made at the University of Iowa in occupational medicine, but substantial training and service needs exist. While most programs are in formative stages; there is a substantial commitment from the University to address the occupational illnesses and injuries associated with an increasingly industrialized society.

The editors invite your comments, inquiries, and suggestions. Please address Letter to the Editor, IOWA MEDICINE, 1001 Grand Avenue, West Des Moines, Iowa 50265.

BLACK HILLS SEMINAR

The Tenth Annual Black Hills Seminar on Advances in Clinical Pediatrics — June 17, 18 and 19, 1987, at Sylvan Lake Resort, Custer, South Dakota, sponsored by the Department of Pediatrics and Adolescent Medicine, University of South Dakota School of Medicine. Guest faculty include: Drs. John Grossman, Alvin Jacobs, Daniel Levin, George McCracken and Paul Quie. For complete conference information, contact:

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As Population Ages, U of I Broadens Services

PAUL M. SEEBOHM, M.D., and
CHARLES M. HELMS, M.D., Ph.D.
Iowa City, Iowa

As more Iowans reach advanced age, new health care and social needs emerge. Specialists from various University of Iowa departments and colleges are studying these needs and helping practicing professionals deal with them in their communities.

A RECENT REPORT OF the Iowa Health Data Commission (IHDC), "Health Care Trends and Issues in Iowa," effectively brings home the message the population is graying.

The IHDC report contains striking predictions about the aging of Iowa's population. It is estimated between 1980 and 2000, the number of Iowans 75 years old and older will increase 31%.

This prediction has implications for the cost of health care delivery because the elderly require considerably more health care. Often overlooked are the implications it holds for health care education.

The College of Medicine has participated in a university-wide effort to address the health care needs of elders. This article outlines what has been and is being done.

Aging has been a subject of professional interest to faculty members in several of the 10 University of Iowa colleges. Special health needs of the aged have been the subject of study and clinical efforts in the health science colleges: medicine, dentistry, nursing and pharmacy. Social, psychological, financial and educational aspects of aging have been dealt with in the school of social work, departments of home economics, sociology, college of liberal arts, college of education and division of continuing education. Many studies are interdisciplinary, since aging affects the total person.

Examples of University of Iowa efforts to study and improve the lives of the aging population are:

- The University has launched a geriatric information and education center. Supported by a $549,561 grant from the National Institute of Aging, the center provides new opportunities for education in the needs of the elderly and a lending library for health professionals, social workers and care centers throughout Iowa. The center is directed by Drs. Ian Smith and Glenys Williams.
- The University's 10th Annual Midwestern Conference on Health Care in the Elderly drew 90 registrants in November, a majority of them physicians. Geriatric topics are dealt with in many of the 200-plus continuing medical education programs sponsored each year by the College of Medicine for some 10,000 registrants. During this year's Midwestern Confer-

Dr. Seebohm is consultant to the dean, and Dr. Helms is associate dean of the University of Iowa College of Medicine. Both are faculty members in the Department of Internal Medicine.

ence, the Iowa Affiliate of the American Federation for Aging Research was established.

• A major geriatric epidemiological study was recently done in Washington County under the direction of Dr. Robert Wallace, head of the Department of Preventive Medicine and Environmental Health, with the support of a $2 million grant awarded by the National Institutes of Health. This study provided information on death, chronic conditions, disabilities and institutionalization of the elderly. The study is expected to identify risk factors predictive of change in the health status and development of other problems of the elderly.

• Several major findings have been made in the University of Iowa Alzheimer's Disease Research Center, established 2 years ago in the Department of Neurology. Diagnostic procedures have been improved and the location of brain and nerve damage has been pinpointed. Disease management and support strategies for patients and families have been developed at the Center.

• University of Iowa faculty are often asked to share their knowledge of the aging process. Professor Kathleen Buckwalter of the College of Nursing faculty testified twice before the U.S. Senate's Subcommittee on Aging concerning the need for more generous funding of research on Alzheimer's. Governor Terry Branstad appointed Professor Buckwalter to the State Task Force on Elder Abuse last August.

• Geriatric dental care is taught in the University of Iowa College of Dentistry, one of a small number of dental schools providing instruction in this area for undergraduates and practicing dentists through continuing dental education. For several years the College operated a mobile dental clinic which provided dental care to nursing home patients.

• Medical students begin learning about health needs of the elderly in their sophomore year, with lectures and case presentations on Alzheimer's, benign prostatic hypertrophy, cataracts, degenerative arthritis, hip replacement, heart and vascular diseases, cardiac and vascular surgery and cancer. Problems associated with caring for the geriatric patient are subjects of lectures.

In clinical clerkships medical students learn to deal with these problems on a case-by-case basis in all the departments (except obstetrics and gynecology). At the graduate level, residents in respective specialties deal daily with geriatric patients. A national in-training examination of family practice residents recently showed superior performance by Iowa residents on the geriatric segment.



Geriatric Education Center — Discussing geriatric issues with Ian Smith, M.D., (right), professor of internal medicine and director of the UI Geriatric Education Center, are (from left) Julia Castells, sociologist from Argentina; Harold McFarling, patient from Hedrick, Iowa; and Phyllis Hannah, M.D., fellow in internal medicine and geriatrician.

• Nurses, social workers, faculty, students and residents attend a weekly seminar on geriatrics conducted year-round in University Hospitals.

• Recent College of Pharmacy Research efforts of benefit to the elderly include reformulation of an anti-cataract drug to reduce the number of undesirable side-effects and studies in geriatric pharmacy for rural elderly. Iowa pharmacists have received instruction from faculty members in helping elderly patients keep track of their medications.

• Health professionals from a variety of fields, social workers and others earn a certificate in aging studies to enhance their effectiveness in working with older persons.

• Studies of effects created by retirement have been done by faculty members in the Department of Home Economics.

• At least 2 faculty members in recreation education work extensively on exercises for the aged. Several courses have been videotaped for use in nursing and retirement homes.

• The University of Iowa was one of the na-

(Please turn to page 182)

tion's leaders in the Elderhostel movement, and for 10 years has coordinated special summer courses offered by 26 Iowa colleges and universities.

- Over the past 9 years the University of Iowa Health News Service has promulgated tips and guidelines to help older people stay healthy through the weekly "Health Wanted Column" provided free to 200 Iowa newspapers.
- A geriatric service has been established at Iowa City Veterans Administration Medical Center under the leadership of Dr. Annette Fitz. A 6-bed geriatric inpatient unit is under construction and an outpatient geriatric clinic meets weekly.

Such interdisciplinary endeavors attest to the breadth of the University's effort in this important area of health care and education. We anticipate development of more programs for the aged within the College and University and look forward to challenges posed by the graying of Iowa.

An Historical Vignette

MEDICATION CHANGES SINCE THE THIRTIES

At the time of my retirement in 1981, I reflected upon changes that had come about since I started practice in 1934. I was most impressed by the contents of my medical bag compared to its contents at the start.

I still had the same pill case, containing 20 vials for small supplies of the most commonly used drugs. We carried the full spectrum of medications to give the patient a starting supply. This was essential when making home calls, especially at night or when the patient was far from a drug store. I was shocked to find that of the 20 original medications, only 2 (aspirin products for adults and children) remained the same after 47 years. Three were purifications and 15 were entirely different.

The purifications or improved ones were Digitalis, Ephedrine and Belladonna. Medications that had been eliminated were A.P.C.'s of three varities, charcoal and soda, Phenobarbital (½ gr. and 1½ gr.), Nembutal (½ gr. and 1½ gr.), Bismuth Subgallate (7½ gr.), Cascara tabs, Codeine and aspirin, Calcidine (childrens and adult sizes), Ammonium Cl (5 gr.), Santonin and Calomel.

The amount of opiates used, especially codeine, was much greater years ago. I don't recall a high incidence of addiction because of short duration usage and because the patient was unaware of the drug used. We also carried small supplies of cough expectorants, paregoric and ipecac. These medications remained the same.

Our armamentarium in 1934 was very meagre compared to now. We had no Sulfa, antibiotics or antihistamines, very inadequate diuretics and no effective drugs for controlling hypertension.

Our injectable opiates were morphine, (with or without atropine), codeine and apomorphine. These came in tablet form. When an injection of opiate was needed in the home we boiled the syringe, needle and a spoon and dissolved the tablet in a spoonful of water. This was a tedious and time consuming procedure and we soon improved upon it. Since we had none of the present effective pain medications, tranquilizers or short-acting sedatives, we used more of the heavy barbiturates and bromides. These frequently lead to dependence.

The pipette case for white counts remained the same, but after a few years we discontinued taking a microscope on house calls.

In retrospect, it seems remarkable we were able to provide a relatively high level of care without antibiotics and so many other medications we now consider essential. — C. A. Trueblood, M.D., *Indianola, Iowa.*

Before prescribing, see complete prescribing information in SK&F CO. literature or *PDR*. The following is a brief summary.

* **WARNING**

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

Warnings: Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K^+ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K^+ intake. Associated **widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of triamterene and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Angiotensin-converting enzyme (ACE) inhibitors can elevate serum potassium; use with caution with 'Dyazide'. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin [ACTH]). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function. Thiazides may add to or potentiate the action of other antihypertensive drugs. Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

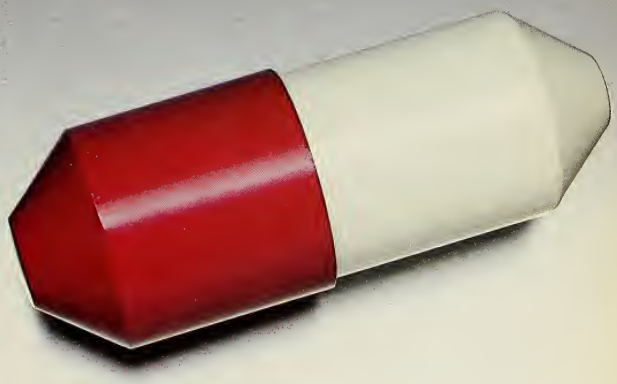
Supplied: 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

BRS-DZ:L42

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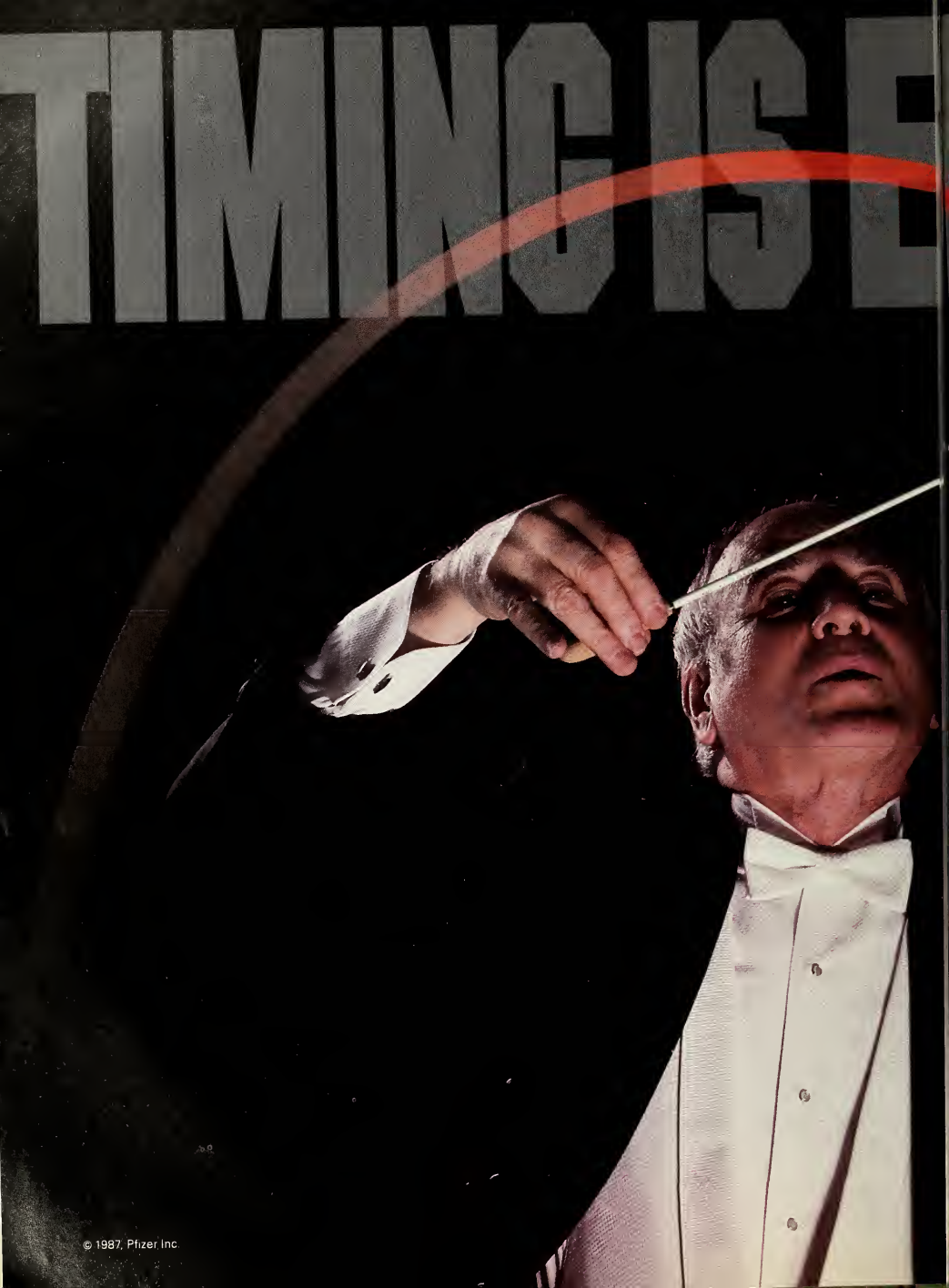
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Rapidly metabolized and excreted, with an excellent safety profile.[1] As with all sulfonylureas, hypoglycemia may occur.

In concert with diet in non-insulin-dependent diabetes mellitus

Glucotrol®

(glipizide) 5-mg and 10-mg Scored Tablets



SYNCHRONIZED SULFONYLUREA THERAPY

Please see brief summary of Glucotrol® (glipizide) prescribing information on next page.

ROERIG Pfizer
A division of Pfizer Pharmaceuticals
New York, New York 10017

Reference:
1. Sachs R, Frank M, Fishman SK: Overview of clinical experience with glipizide. In *Glipizide: A Worldwide Review*. Princeton, NJ, Excerpta Medica, 1984, pp 163-172.

GLUCOTROL® (glipizida) Tablets

Brief Summary of Prescribing Information

INDICATIONS AND USAGE: GLUCOTROL is indicated as an adjunct to diet for the control of hyperglycemia in patients with non-insulin-dependent diabetes mellitus (NIDDM, type II) after an adequate trial of dietary therapy has proved unsatisfactory.

CONTRAINDICATIONS: GLUCOTROL is contraindicated in patients with known hypersensitivity to the drug or with diabetic ketoacidosis, with or without coma, which should be treated with insulin.

SPECIAL WARNING ON INCREASED RISK OF CARDIOVASCULAR MORTALITY: The administration of oral hypoglycemic drugs has been reported to be associated with increased cardiovascular mortality as compared to treatment with diet alone or diet plus insulin. This warning is based on the study conducted by the University Group Diabetes Program (UGDP), a long-term prospective clinical trial designed to evaluate the effectiveness of glucose-lowering drugs in preventing or delaying vascular complications in patients with non-insulin-dependent diabetes. The study involved 823 patients who were randomly assigned to one of four treatment groups (*Diabetes*, 19, supp. 2:747-830, 1970).

UGDP reported that patients treated for 5 to 8 years with diet plus a fixed dose of tolbutamide (1.5 grams per day) had a rate of cardiovascular mortality approximately 2-1/2 times that of patients treated with diet alone. A significant increase in total mortality was not observed, but the use of tolbutamide was discontinued based on the increase in cardiovascular mortality, thus limiting the opportunity for the study to show an increase in overall mortality. Despite controversy regarding the interpretation of these results, the findings of the UGDP study provide an adequate basis for this warning. The patient should be informed of the potential risks and advantages of GLUCOTROL and of alternative modes of therapy.

Although only one drug in the sulfonylurea class (tolbutamide) was included in this study, it is prudent from a safety standpoint to consider that this warning may also apply to other oral hypoglycemic drugs in this class, in view of their close similarities in mode of action and chemical structure.

PRECAUTIONS: Renal and Hepatic Disease: The metabolism and excretion of GLUCOTROL may be slowed in patients with impaired renal and/or hepatic function. Hypoglycemia may be prolonged in such patients should it occur.

Hypoglycemia: All sulfonylureas are capable of producing severe hypoglycemia. Proper patient selection, dosage, and instructions are important to avoid hypoglycemia. Renal or hepatic insufficiency may increase the risk of hypoglycemic reactions. Elderly, debilitated or malnourished patients and those with adrenal or pituitary insufficiency are particularly susceptible to the hypoglycemic action of glucose-lowering drugs. Hypoglycemia may be difficult to recognize in the elderly or people taking beta-adrenergic blocking drugs. Hypoglycemia is more likely to occur when caloric intake is deficient, after severe or prolonged exercise, when alcohol is ingested, or when more than one glucose-lowering drug is used.

Loss of Control of Blood Glucose: A loss of control may occur in diabetic patients exposed to stress such as fever, trauma, infection or surgery. It may then be necessary to discontinue GLUCOTROL and administer insulin.

Laboratory Tests: Blood and urine glucose should be monitored periodically. Measurement of glycosylated hemoglobin may be useful.

Information for Patients: Patients should be informed of the potential risks and advantages of GLUCOTROL, of alternative modes of therapy, as well as the importance of adhering to dietary instructions, of a regular exercise program, and of regular testing of urine and/or blood glucose. The risks of hypoglycemia, its symptoms and treatment, and conditions that predispose to its development should be explained to patients and responsible family members. Primary and secondary failure should also be explained.

Drug Interactions: The hypoglycemic action of sulfonylureas may be potentiated by certain drugs including nonsteroidal anti-inflammatory agents and other drugs that are highly protein bound, salicylates, sulfonamides, chloramphenicol, probenecid, coumarins, monoamine oxidase inhibitors, and beta adrenergic blocking agents. *In vitro* studies indicate that GLUCOTROL binds differently than tolbutamide and does not interact with salicylate or dicumarol. However, caution must be exercised in extrapolating these findings to a clinical situation. Certain drugs tend to produce hyperglycemia and may lead to loss of control, including the thiazides and other diuretics, corticosteroids, phenothiazines, thyroid products, estrogens, oral contraceptives, phenytoin, nicotinic acid, sympathomimetics, calcium channel blocking drugs, and isoniazid. A potential interaction between oral miconazole and oral hypoglycemic agents leading to severe hypoglycemia has been reported. Whether this interaction also occurs with the intravenous, topical, or vaginal preparations of miconazole is not known.

Carcinogenesis, Mutagenesis, Impairment of Fertility: A 20-month study in rats and an 18-month study in mice at doses up to 75 times the maximum human dose revealed no evidence of drug-related carcinogenicity. Bacterial and *in vivo* mutagenicity tests were uniformly negative. Studies in rats of both sexes at doses up to 75 times the human dose showed no effects on fertility.

Pregnancy: Pregnancy Category C. GLUCOTROL (glipizide) was found to be mildly fetotoxic in rat reproductive studies at all dose levels (5-50 mg/kg). This fetotoxicity has been similarly noted with other sulfonylureas, such as tolbutamide and tolazamide. The effect is perinatal and believed to be directly related to the pharmacologic (hypoglycemic) action of GLUCOTROL. In studies in rats and rabbits no teratogenic effects were found. There are no adequate and well controlled studies in pregnant women. GLUCOTROL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Because recent information suggests that abnormal blood glucose levels during pregnancy are associated with a higher incidence of congenital abnormalities, many experts recommend that insulin be used during pregnancy to maintain blood glucose levels as close to normal as possible.

Nonteratogenic Effects: Prolonged severe hypoglycemia has been reported in neonates born to mothers who were receiving a sulfonylurea drug at the time of delivery. This has been reported more frequently with the use of agents with prolonged half-lives. GLUCOTROL should be discontinued at least one month before the expected delivery date.

Nursing Mothers: Since some sulfonylurea drugs are known to be excreted in human milk, insulin therapy should be considered if nursing is to be continued.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: In controlled studies, the frequency of serious adverse reactions reported was very low. Of 702 patients, 11.8% reported adverse reactions and in only 1.5% was GLUCOTROL discontinued.

Hypoglycemia: See PRECAUTIONS and OVERDOSAGE sections.

Gastrointestinal: Gastrointestinal disturbances, the most common, were reported with the following approximate incidence: nausea and diarrhea, one in 70; constipation and gastralgia, one in 100. They appear to be dose-related and may disappear on division or reduction of dosage. Cholestatic jaundice may occur rarely with sulfonylureas. GLUCOTROL should be discontinued if this occurs.

Dermatologic: Allergic skin reactions including erythema, morbilliform or maculopapular eruptions, urticaria, pruritus, and eczema have been reported in about one in 70 patients. These may be transient and may disappear despite continued use of GLUCOTROL. If skin reactions persist, the drug should be discontinued. Porphyria cutanea tarda and photosensitivity reactions have been reported with sulfonylureas.

Hematologic: Leukopenia, agranulocytosis, thrombocytopenia, hemolytic anemia, aplastic anemia, and pancytopenia have been reported with sulfonylureas.

Metabolic: Hepatic porphyria and disulfiram-like alcohol reactions have been reported with sulfonylureas. Clinical experience to date has shown that GLUCOTROL has an extremely low incidence of disulfiram-like reactions.

Endocrine Reactions: Cases of hyponatremia and the syndrome of inappropriate antidiuretic hormone (SIADH) secretion have been reported with this and other sulfonylureas.

Miscellaneous: Dizziness, drowsiness, and headache have been reported in about one in fifty patients treated with GLUCOTROL. They are usually transient and seldom require discontinuance of therapy.

OVERDOSAGE: Overdosage of sulfonylureas including GLUCOTROL can produce hypoglycemia. If hypoglycemic coma is diagnosed or suspected, the patient should be given a rapid intravenous injection of concentrated (50%) glucose solution. This should be followed by a continuous infusion of a more dilute (10%) glucose solution at a rate that will maintain the blood glucose at a level above 100 mg/dL. Patients should be closely monitored for a minimum of 24 to 48 hours since hypoglycemia may recur after apparent clinical recovery. Clearance of GLUCOTROL from plasma would be prolonged in persons with liver disease. Because of the extensive protein binding of GLUCOTROL (glipizide), dialysis is unlikely to be of benefit.

DOSAGE AND ADMINISTRATION: There is no fixed dosage regimen for the management of diabetes mellitus with GLUCOTROL; in general, it should be given approximately 30 minutes before a meal to achieve the greatest reduction in postprandial hyperglycemia.

Initial Dose: The recommended starting dose is 5 mg before breakfast. Geriatric patients or those with liver disease may be started on 2.5 mg. Dosage adjustments should ordinarily be in increments of 2.5-5 mg, as determined by blood glucose response. At least several days should elapse between titration steps.

Maximum Dose: The maximum recommended total daily dose is 40 mg.

Maintenance: Some patients may be effectively controlled on a once-a-day regimen, while others show better response with divided dosing. Total daily doses above 15 mg should ordinarily be divided.

HOW SUPPLIED: GLUCOTROL is available as white, dye-free, scored diamond-shaped tablets imprinted as follows: 5 mg tablet—Pfizer 411 (NDC 5 mg 0049-4110-66) Bottles of 100; 10 mg tablet—Pfizer 412 (NDC 10 mg 0049-4120-65) Bottles of 100.

CAUTION: Federal law prohibits dispensing without prescription.

More detailed professional information available on request.

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ANNUAL MEETING
of the
AMERICAN COLLEGE OF PHYSICIANS
IOWA CHAPTER
in association with the
IOWA CLINICAL SOCIETY OF INTERNAL MEDICINE

May 8-9, 1987

Hosted and Cosponsored by
The Department of Internal Medicine
The University of Iowa College of Medicine
Iowa City, Iowa

PROGRAM

Friday, May 8

8:15 a.m. - 4:30 p.m.

Diabetes/Endocrinology Update
Health Policy Forum
Computer Applications for Physicians
Cardiovascular Update
Case Presentations

Saturday, May 9

8:00 a.m. - 12:00 p.m.

Transplantation 1987
Assessing Surgical Risk

GUEST FACULTY:

R. Wayne Alexander, M.D., Ph.D., Associate Professor, Department of Internal Medicine, Harvard Medical School, Boston, Massachusetts

Douglas Greene, M.D., Professor and Chair, Divison of Endocrinology, Department of Internal Medicine, University of Michigan School of Medicine, Ann Arbor, Michigan

Harold Lebovitz, M.D., Professor and Chair, Division of Endocrinology, Department of Internal Medicine, Downstate College School of Medicine, New York

Phil R. Manning, M.D., F.A.C.P., A.C.P. Regent, Associate Dean, University of Southern California School of Medicine, Los Angeles, California

Robert T. Manning, M.D., F.A.C.P., A.C.P. Governor, Kansas, Professor of Medicine and Associate Dean, University of Kansas School of Medicine, Wichita, Kansas

Deborah Prout, Director of Health and Public Policy, A.C.P., Philadelphia, Pennsylvania

Richard D. Ruppert, M.D., Trustee, A.S.I.M., Toledo, Ohio

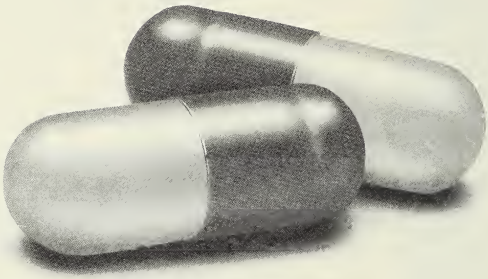
For a detailed agenda along with advance registration information, fill out and return this form to William Radl, Arrangements Coordinator, Department of Internal Medicine, The University of Iowa Hospitals and Clinics, Iowa City, Iowa 52242 or call (319) 335-8957.

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Marion E. Alberts, M.D.

COMMENTING EDITORIALLY



TO THE COLLEGE OF MEDICINE

THE FIRST DAY OF MEDICAL COLLEGE is, to say the least, exhilarating. Much of the harassment placed upon medical students of years ago has diminished. The tension remains. Two incidents come to my mind as I reflect upon my first day of medical college. The first lecturer informed our class of 99 students that there were only 85 seats in the second-year lecture hall. Attrition would definitely occur. Another professor suggested we have an extra pen or pencil because his lectures were fast-moving. Taking time to retrieve a dropped pen would lead to disaster. The time lost in scribbling notes would place the student far behind; failure would ensue.

Like doomed sheep we heeded those admonitions. We lived in fear of failure. That fear continued into the second year. The attrition process had taken its toll; one third of the class had been eliminated. The last 2 years were different. We were *student doctors*, not medical students.

We had one inspiration during that trying first year. The Alpha Kappa Kappas had a beautiful collie, Aesculapius, who sat in on all our freshman lectures. "Esky" slept comfortably on the floor at the front of the lecture hall. The professors tolerated him. The students loved him. Year after year that beautiful dog attended the first year classes, never expelled for inattention, always welcome. In dog-heaven he surely must be contemplating the complexities of gross anatomy, embryology and microbiology. Incidently, Esky also enjoyed fraternity parties. Though he lived with the AKKs, he belonged to all of us. So much for recollections of medical college days.

This issue of IOWA MEDICINE is dedicated to everyone at the College of Medicine, University of Iowa. It is a tradition the April issue is so designated. We of IOWA MEDICINE cherish the close relationship we have with the College. In this issue, we examine how medical students become what they will. Who decides to become a physician? Are students of medicine different from other people? What stimulates interest in a medical career?

"The on-going integrated activities of the College are closely related to the practice of medicine throughout Iowa. Our joint efforts can promote a better grade of medical practice by all."

Advancement in programs offered by University Hospitals is of interest to physicians and their patients. We include a report from Mr. John Colloton in this vein. Dean Eckstein of the College of Medicine reports from his vantage point. The on-going integrated activities of the College are closely related to the practice of medicine throughout Iowa. Our joint efforts can promote a better grade of medical practice by all. That means better care for our patients.

Our thanks to Gordon Strayer and Dean Borg for their valuable assistance in coordinating development of this issue. They have developed many good ideas for us, some of which could not be used because of space limitations. To those who provided articles we were unable to use we extend thanks and regrets. We are happy to salute our colleagues at Iowa City. — M.E.A.

University of Iowa Hospitals & Clinics

DRUG THERAPY REVIEW

Reynold Spector, M.D., Editor

ETOPOSIDE FOR SMALL CELL LUNG CANCER

ETOPOSIDE IS A SEMISYNTHETIC GLUCOSIDE DERIVATIVE of podophyllotoxin that has recently been approved by the Food and Drug Administration for the treatment of small cell cancer of the lung. Etoposide is 1 of 2 synthetic podophyllotoxins that show substantial promise as antineoplastic agents. VM-26 (teniposide) is the other synthetic podophyllotoxin that has a similar range of clinical activity but has better CNS penetration. Etoposide when used as a single agent has demonstrated a broad range of antineoplastic activity with objective responses (complete and partial responses totaled*) in over 20% of patients with small cell lung cancer, testicular cancer, Hodgkin's disease, non-Hodgkin's lymphoma, acute monocytic and myelomonocytic leukemia, Kaposi's sarcoma, and Ewings sarcoma.[1] Etoposide was first approved by the Food and Drug Administration for use in patients with testicular cancer resistant to standard first-line chemotherapy. In this setting, etoposide effected a 30% response rate. In a randomized trial, combination chemotherapy with etoposide, bleomycin, and cis-platinum has proven to be equally curative therapy in testicular cancer with less toxicity than the previous standard therapy of vinblastine, bleomycin, and cis-platinum. Although etoposide as a single agent has substantial activity against both testicular cancer and small cell lung cancer, it was its combination with cis-platinum that demonstrated its clinical utility. In patients with testicular cancer who had failed to achieve long-term cure with vinblastine, bleomycin, and cis-platinum, long-term cure with etoposide and cis-platinum can be achieved. After progression of small cell lung cancer initially treated with Cytoxan, Adriamycin, and vincristine (CAV), etoposide and cis-platinum effected a 50% response rate. The combination of etoposide and cis-platinum is synergistic against P388 and L1210 leukemia, which are standard animal preclinical testing models. This synergy is demonstrable against testicular cancer and small cell lung cancer in man. This is probably the major example of synergism in clinical cancer therapy at the present time. It is the remarkable activity of the combination of etoposide and cis-platinum together that led to the approval for etoposide use in small cell lung cancer by the Food and Drug Administration.

Pharmacology

Etoposide is diluted in 5% dextrose or 0.9% sodium chloride to a final concentration of 0.2-0.4 mg/ml and administered slowly IV over 30 to 60 minutes. Administration at higher concentrations or over shorter time periods may lead to serious hypotension. Oral preparations have led to inconsistent absorption and should not be used. Following intravenous administration, etoposide clearance has a terminal or beta half-life of 7 hours (range 3-12 hours). The steady-state volume of distribution is 28% of body size. At a level of 10 μg/ml, 94% of the

(Please turn to page 189)

* Complete response is defined as resolution of all detectable cancer. Partial response is defined as 50% reduction in the sum of the area of all measurable evidence of disease.

This information for Iowa physicians is furnished and sponsored by the University of Iowa Hospitals and Clinics.

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CARDIAC TRANSPLANT AND ARTIFICIAL BRIDGING DEVICES

JUNE 5, 1987

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TOPICS:

"JARVIK-7 THE TOTAL ARTIFICIAL HEART"

"IMMUNOSUPPRESSION IN CARDIAC TRANSPLANTATION: THE UNIVERSITY OF UTAH EXPERIENCE"

"THE ETHICS OF ORGAN TRANSPLANTATION"

"THE CLINICAL ADVANCES IN CARDIAC TRANSPLANTATION"

"CARDIAC TRANSPLANTATION: THE MERCY EXPERIENCE"

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drug is protein bound. Using radioactively labeled etoposide, it can be demonstrated that over 72 hours, 44 to 60% of the radioactivity is found in the urine of which 67% is unchanged drug. The dosage of etoposide should be decreased in patients with renal insufficiency. The major metabolites are the hydroxyacids and the cis-lactone. Biliary clearance of metabolites has not been consistent from study to study. It has been recommended in some studies that the dose should be decreased for hepatic dysfunction.[2] At standard doses, penetration of etoposide into the cerebrospinal fluid has been poor. At higher doses, CSF levels have reached 0.54 μg/ml and objective responses in patients with small cell lung cancer metastatic to the brain observed.[3]

The optimum dose and schedule for the clinical use of etoposide is not entirely defined. Although responses have been seen for both single dose and multiple dose regimens, both animal and human studies show higher response rates for repeated dose schedules over once weekly therapy.[4] The common dose-limiting toxicities are myelosuppression and mucositis. Although very high doses appear more effective when combined with autologous bone marrow transplantation, a randomized trial by the Southeastern Cancer Study Group (SECSG) found no difference in response rates for single doses of 300, 600, and 900 mg/m^2.[5]

The mechanism of action of etoposide involves inhibition of DNA synthesis by causing DNA stand breakage and inhibition of DNA repair via inhibition of topoisomerase II. The main effect in mammalian cells appears to be arrest in the G2 phase of the cell cycle. Etoposide is not an inhibitor of microtubule assembly and is not a vinca alkaloid. The effects of etoposide on DNA can be seen in vitro at levels of 10.25 μg/ml, a level below that required for cytotoxicity. However, etoposide must be activated by microsomal enzymes to active intermediates for it to react with DNA.

Clinical Efficacy Against Small Cell Cancer of the Lung (SCCL)

The untreated natural history of small cell lung cancer is for the patient to survive a median of 4 months. With aggressive combination chemotherapy (without etoposide) and radiotherapy, patients whose disease is limited to the chest at presentation have a median survival of approximately 18 months in the most successful studies with perhaps 5 to 15% of patients being long-term disease-free survivors. For patients whose disease extends beyond the chest at presentation, combination chemotherapy yields a median survival of 8 to 12 months with only rare cure.

In 15 studies of 437 patients with small cell lung cancer treated with etoposide, an overall response rate of 34% was observed.[6] The overall response rate would include patients with complete response and partial response. Among patients who had no prior chemotherapy, the response rate was 51% (range of 20-63% among the various studies). For patients who had had prior chemotherapy, the response rate was 20% (range of 0-58%). The single agent activity of etoposide is comparable to all other approved agents for the treatment of small cell lung cancer such as cyclophosphamide (38%), vincristine (42%), and doxorubicin (30%). It is less than 2 recent reports of greater activity with the experimental agents VM-26 (90% response rate with 21% complete responses)[7] or CBDCA (60% response rate with 10% complete responses).[8]

When employed as initial therapy for SCCL, etoposide and cis-platinum have given response rates and survival times similar or superior to that for standard chemotherapy with cyclophosphamide, vincristine, and Adriamycin (CAV).[9] The results of this therapy are more remarkable as many of these studies included patients with congestive heart failure or poor performance status not eligible to receive doxorubicin-containing therapy. Kim and McDonald from the University of Kansas gave cis-platinum (75 mg/m^2 day 2) and etoposide (125 mg/m^2 days 1, 3, 5) every 28 days. In limited SCCL, a 91% overall response rate and a 55% complete response rate were observed. For patients with extensive disease, the complete response rate was 15% with an overall response rate of 85%.[9] Woods and Levi from the Royal North Shore Hospital in Sydney found similar results using cis-platinum (80 mg/m^2 day 1) and etoposide (60 mg/m^2 days 1-3) every 21 days. In limited disease, the complete response rate was 48% and overall response rate was 84%. In extensive disease, the com-

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DRUG THERAPY REVIEW

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plete response rate was 21% with an overall response rate of 64%. The overall median survival was 11.5 months. Evans *et al* from Toronto reported a 63% complete response rate in limited disease and a 29% overall response rate in extensive disease.[9] These 3 studies show rather consistent results.

In patients with SCCL who have had prior combination chemotherapy and progressed, the median survival is generally a matter of 4 to 6 weeks. Etoposide and cis-platinum have effected a 50% response rate in 10 published series using this combination in previous treatment failures. Responding patients survived 5 to 13 months further from the time the new combination was given. These results strongly suggest that etoposide and cis-platinum are not cross resistant with other standard therapies for small cell lung cancer.[6]

Goldie and Coldman have developed a mathematical model relating the design of chemotherapeutic treatments to the fraction of drug-resistant cancer cells in the host.[10] Alternating different drug combinations with different mechanisms of action may overcome drug resistance. This is similar to the use of multiple antibiotics used to overcome drug-resistant organisms in tuberculosis. The use of MOPP (nitrogen mustard, vincristine, prednisone, procarbazine) alternating with ABVD (Adriamycin, bleomycin, vinblastine, DTIC) in patients with stage IV Hodgkin's disease may be a successful use of the Goldie-Coldman model to treat cancer. The development of the etoposide and cis-platinum combination as a noncross resistant treatment with therapy immediately suggested to many investigators alternating these combinations. Murray *et al* employed alternating combination therapy with CAV and etoposide/cis-platinum plus radiotherapy to the chest in patients with limited small cell lung cancer. The complete response rate was 76%, the median survival was 78 weeks, the 2-year survival was 32%, and 17% of patients remain disease free with >3 years of followup.[9] The SECSG treated patients with limited small cell lung cancer with CAV to complete remission and then randomized the patients to etoposide/cis-platinum vs. no further therapy. There is a significant survival advantage for the etoposide/cis-platinum arm and the median survival will be over 2 years for the first time in a clinical trial.[11]

In other institutions, etoposide has been added to CAV as a fourth drug with CAV or used in lieu of vincristine with cyclophosphamide and doxorubicin. The results of these trials show a numerically significantly superior survival for etoposide-containing regimens for extensive disease in randomized trials. However, the clinical significance was small as the survival advantage was a matter of 2 months or less.

A randomized trial by the National Cancer Institute (NCI) of Canada compared CAV vs. CAV alternating with etoposide and cis-platinum in patients with extensive small cell lung cancer.[9] The overall response rate was 39% for CAV vs. 61% for the alternating combination. Both the disease-free and overall survival were significantly longer for the 2 combinations. This data along with similar nonrandomized trial data suggest that CAV alternating with etoposide/cis-platinum may be the best current

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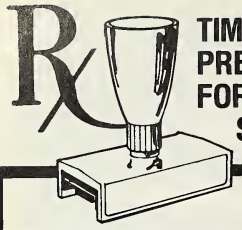
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therapy for extensive small cell lung cancer.

Toxicity

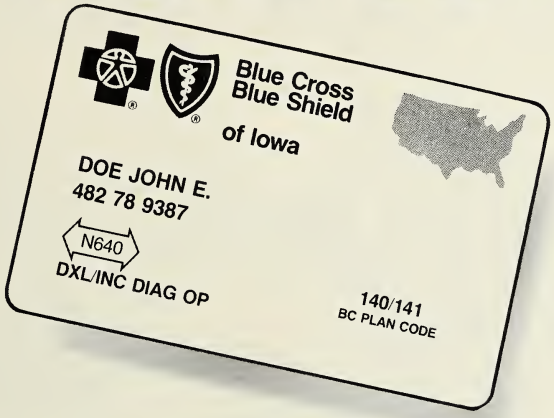
Etoposide alone generally has dose-limiting myelosuppression. Leukopenia is more frequent and severe than thrombocytopenia. Mucositis and diarrhea are common but usually not severe. Nausea, vomiting, and alopecia will occur in some patients. Neuropathy may be enhanced by using etoposide along with other neurotoxic agents such as vincristine or cisplatinum. However, there are contrary reports in the literature on the severity of this interaction.

Etoposide is marketed under the brand name of VePesid by the Bristol Company. It is now approved by the FDA for the treatment of refractory testicular tumors and small cell lung cancer. It is used as well in combination therapy for aggressive lymphomas (NCI regimen called PRO-MACE) and as a single agent or in combination for preparing patients for autologous bone marrow transplantation. Its activity against Kaposi's sarcoma is significant and as the AIDS epidemic and the incidence of Kaposi's sarcoma grows, etoposide may well become approved for this use. Etoposide and VM-26 are likely to gather wider use as their utility is defined in further controlled clinical trials. — JAMES GLAUBER, M.D., *and* GERALD H. CLAMON, M.D., *Department of Internal Medicine.*

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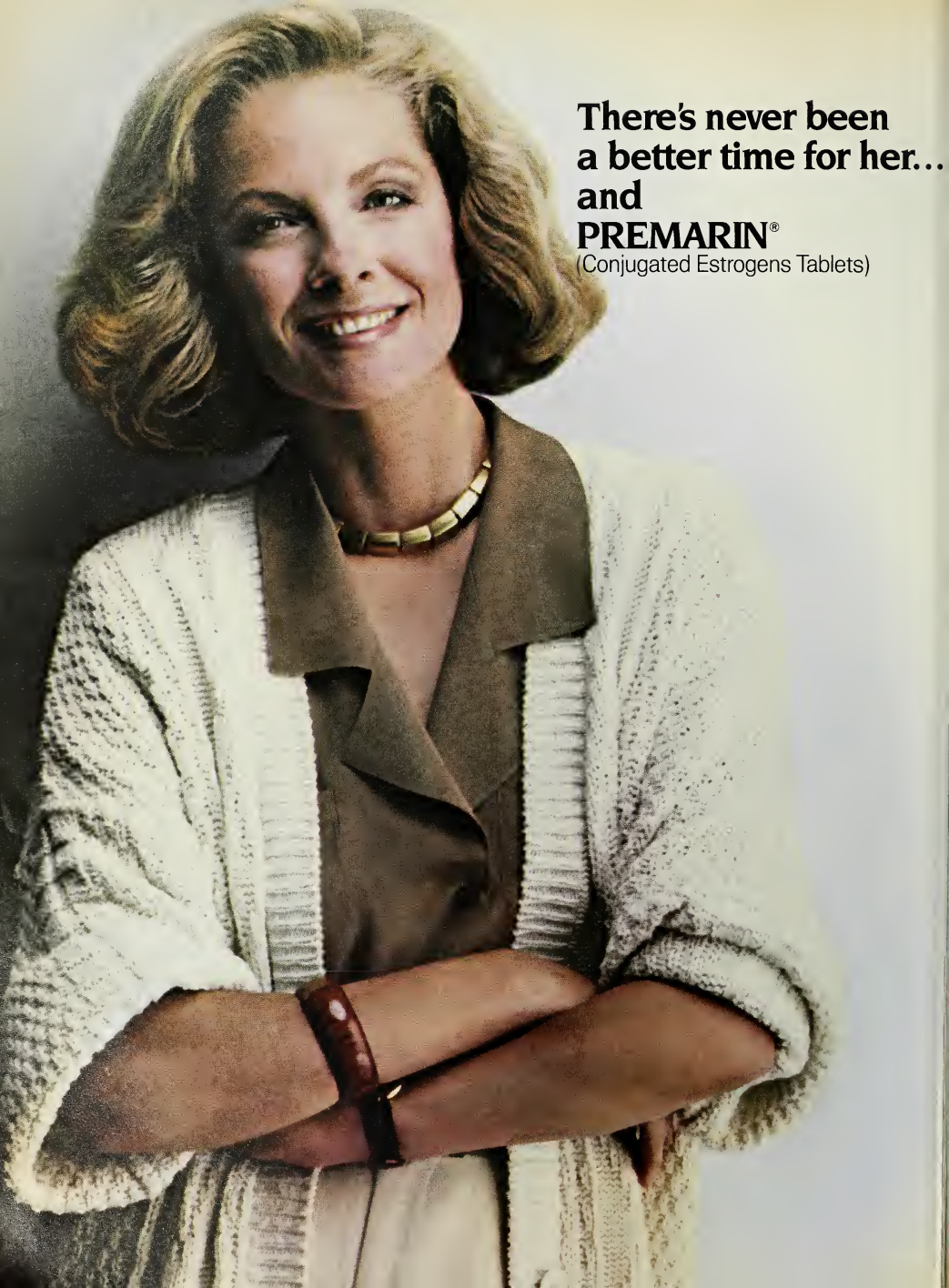


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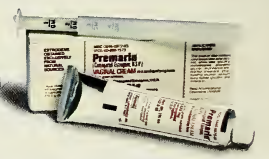
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1. ESTROGENS HAVE BEEN REPORTED TO INCREASE THE RISK OF ENDOMETRIAL CARCINOMA

Three independent case control studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens tor more than one year. This risk was independent of the other known risk factors for endometrial cancer. These studies are further supported by the finding that incidence rates of endometrial cancer have increased sharply since 1969 in eight different areas of the United States with population-based cancer reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade. The three case control studies reported that the risk of endometrial cancer in estrogen users was about 4.5 to 13.9 times greater than in nonusers. The risk appears to depend on both duration of treatment and on estrogen dose. In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible. When prolonged treatment is medically indicated, the patient should be reassessed on at least a semiannual basis to determine the need for continued therapy. Although the evidence must be considered preliminary, one study suggests that cyclic administration of low doses of estrogen may carry less risk than continuous administration; it therefore appears prudent to utilize such a regimen. Close clinical surveillance of all women taking estrogens is important. In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding, adequate diagnostic measures should be undertaken to rule out malignancy. There is no evidence at present that "natural" estrogens are more or less hazardous than "synthetic" estrogens at equiestrogenic doses.

2. ESTROGENS SHOULD NOT BE USED DURING PREGNANCY.

The use of female sex hormones, both estrogens and progestogens, during early pregnancy may seriously damage the offspring. It has been shown that females exposed in utero to diethylstilbestrol, a non-steroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated as not greater than 4 per 1,000 exposures. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have vaginal adenosis, epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are precursors of malignancy. Although similar data are not available with the use of other estrogens, it cannot be presumed they would not induce similar changes. Several reports suggest an association between intrauterine exposure to female sex hormones and congenital anomalies, including congenital heart defects and limb reduction defects. One case control study estimated a 4.7-told increased risk of limb reduction defects in infants exposed in utero to sex hormones (oral contraceptives, hormone withdrawal tests for pregnancy, or attempted treatment tor threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb reduction defects in exposed tetuses is somewhat less than 1 per 1,000. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well controlled studies that progestogens are effective for these uses. If PREMARIN is used during pregnancy, or if the patient becomes pregnant while taking this drug, she should be apprised of the potential risks to the fetus, and the advisability of pregnancy continuation.

DESCRIPTION: PREMARIN (conjugated estrogens, USP) contains a mixture of estrogens, obtained exclusively from natural sources, blended to represent the average composition of material derived from pregnant mares' urine. It contains estrone, equilin, and 17α-dihydroequilin, together with smaller amounts of 17α-estradiol, equilenin, and 17α-dihydroequilenin as salts of their sulfate esters. Tablets are available in 0.3 mg, 0.625 mg, 0.9 mg, 1.25 mg, and 2.5 mg strengths of conjugated estrogens. Cream is available as 0.625 mg conjugated estrogens per gram.

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PREMARIN (conjugated estrogens) Vaginal Cream is indicated in the treatment of atrophic vaginitis and kraurosis vulvae. PREMARIN HAS NOT BEEN SHOWN TO BE EFFECTIVE FOR ANY PURPOSE OURING PREGNANCY AND ITS USE MAY CAUSE SEVERE HARM TO THE FETUS (SEE BOXED WARNING).

Concomitant Progestin Use: The lowest effective dose appropriate for the specific indication should be utilized. Studies ot the addition ot a progestin for 7 or more days of a cycle of estrogen administration have reported a lowered incidence of endometrial hyperplasia. Morphological and biochemical studies of the endometrium suggest that 10 to 13 days of progestin are needed to provide maximal maturation of the endometrium and to eliminate any hyperplastic changes. Whether this will provide protection from endometrial carcinoma has not been clearly established. There are possible additional risks which may be associated with the inclusion ot progestin in estrogen replacement regimens. (See PRECAUTIONS.) The choice ot progestin and dosage may be important; product labeling should be reviewed to minimize possible adverse effects.

CONTRAINDICATIONS: Estrogens should not be used in women (or men) with any of the following conditions: 1. Known or suspected cancer of the breast except in appropriately selected patients being treated for metastatic disease. 2. Known or suspected estrogen-dependent neoplasia 3. Known or suspected pregnancy (See Boxed Warning). 4. Undiagnosed abnormal genital bleeding. 5. Active thrombophlebitis or thromboembolic disorders. 6. A past history of thrombophlebitis, thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast or prostatic malignancy).

WARNINGS: Long-term continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina, and liver. There are now reports that estrogens increase the risk ot carcinoma of the endometrium in humans. (See Boxed Warning.) At the present time there is no satistactory evidence that estrogens given to postmenopausal women increase the risk of cancer of the breast, although a recent study has raised this possibility. There is a need for caution in prescribing estrogens tor women with a strong family history ot breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms. A recent study has reported a 2- to 3-told increase in the risk ot surgically confirmed gallbladder disease in women receiving postmenopausal estrogens.

Adverse effects of oral contraceptives may be expected at the larger doses of estrogen used to treat prostatic or breast cancer or postpartum breast engorgement; it has been shown that there is an increased risk of thrombosis in men receiving estrogens tor prostatic cancer and women for postpartum breast engorgement. Users of oral contraceptives have an increased risk of diseases, such as thrombophlebitis, pulmonary embolism, stroke, and myocardial intarction. Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users. An increased risk of postsurgery thromboembolic complications has also been reported in users of oral contraceptives. If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism, or during periods ot prolonged immobilization. Estrogens should not be used in persons with active thrombophlebitis, thromboembolic disorders, or in persons with a history of such disorders in association with estrogen use. They should be used with caution in patients with cerebral vascular or coronary artery disease. Large doses (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast, have been shown to increase the risk of nonfatal myocradial intarction, pulmonary embolism and thrombophlebitis. When doses ot this size are used, any of the thromboembolic and thrombotic adverse effects should be considered a clear risk.

Benign hepatic adenomas should be considered in estrogen users having abdominal pain and tenderness, abdominal mass, or hypovolemic shock. Hepatocellular carcinoma has been reported in women taking estrogen-containing oral contraceptives. Increased blood pressure may occur with use ot estrogens in the menopause and blood pressure should be monitored with estrogen use. A worsening of glucose tolerance has been observed in patients on estrogen-containing oral contraceptives. For this reason, diabetic patients should be carefully observed. Estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases.

PRECAUTIONS: Physical examination and a complete medical and tamily history should be taken prior to the initiation of any estrogen therapy with special reference to blood pressure, breasts, abdomen, and pelvic organs, and should include a Papanicolaou smear. As a general rule, estrogen should not be prescribed for longer than one year without another physical examination being performed. Conditions influenced by fluid retention such as asthma, epilepsy, migraine, and cardiac or renal dysfunction, require caretul observation. Certain patients may develop manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding, mastodynia, etc. Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients. Oral contraceptives appear to be associated with an increased incidence ot mental depression. Patients with a history of depression should be caretully observed. Preexisting uterine leiomyomata may increase in size during estrogen use. The pathologist should be advised of estrogen therapy when relevant specimens are submitted. If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated. Estrogens should be used with care in patients with impaired liver function, renal insufficiency, metabolic bone diseases associated with hypercalcemia, or in young patients in whom bone growth is not complete. If concomitant progestin therapy is used, potential risks may include adverse effects on carbohydrate and lipid metabolism.

The following changes may be expected with larger doses of estrogen:

a. Increased sulfobromophthalein retention
b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability.
c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by PBI, T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered.
d. Impaired glucose tolerance.
e Decreased pregnanediol excretion.
f. Reduced response to metyrapone test.
g Reduced serum folate concentration.
h. Increased serum triglyceride and phospholipid concentration. As a general principle, the administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk.

ADVERSE REACTIONS: The following have been reported with estrogenic therapy, including oral contraceptives: breakthrough bleeding; spotting, change in menstrual tlow; dysmenorrhea; premenstrual-like syndrome; amenorrhea during and after treatment; increase in size of uterine libromyomata; vaginal candidiasis; change in cervical erosion and in degree of cervical secretion; cystitis-like syndrome; tenderness, enlargement, secretion (of breasts); nausea, vomiting, abdominal cramps, bloating; cholestatic jaundice; chloasma or melasma which may persist when drug is discontinued; erythema multitorme; erythema nodosum; hemorrhagic eruption; loss of scalp hair; hirsutism; steepening of corneal curvature; intolerance to contact lenses; headache, migraine, dizziness, mental depression, chorea; increase or decrease in weight; reduced carbohydrate tolerance; aggravation of porphyria; edema; changes in libido.

ACUTE OVERDOSAGE: May cause nausea, and withdrawal bleeding may occur in temales.

DOSAGE AND ADMINISTRATION:

PREMARIN® Brand of conjugated estrogens tablets, USP

1. *Given cyclically for short-term use only.* For treatment of moderate to severe *vasomotor* symptoms, atrophic vaginitis, or kraurosis vulvae associated with the menopause (0.3 to1.25 mg or more daily). The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible. Administration should be cyclic (eg, three weeks on and one week off). Attempts to discontinue or taper medication should be made at three- to six-month intervals.
2. *Given cyclically:* Female castration. Osteoporosis. Female castration—1.25 mg daily, cyclically. Adjust upward or downward according to response of the patient. For maintenance, adjust dosage to lowest level that will provide effective control. Osteoporosis — 0.625 mg daily. Administration should be cyclic (eg, three weeks on and one week off).

Patients with an intact uterus should be monitored for signs of endometrial cancer and appropriate measures taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

PREMARIN® Brand of conjugated estrogens Vaginal Cream

Given cyclically for short-term use only. For treatment of atrophic vaginitis or kraurosis vulvae.

The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible.

Administration should be cyclic (eg, three weeks on and one week off).

Attempts to discontinue or taper medication should be made at three-to-six month intervals.

Usual dosage range: 2 to 4 g daily, intravaginally, depending on the severity of the condition.

Treated patients with an intact uterus should be monitored closely for signs of endometrial cancer and appropriate diagnostic measures should be taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

References:

1. Whitehead MI, Townsend PT, Pryse-Davies J, et al: Effects of estrogens and progestins on the biochemistry and morphology of the postmenopausal endometrium. *N Engl J Med* 1981;305:1599-1605 **2.** Paterson MEL, Wade-Evans T, Sturdee DW, et al: Endometrial disease after treatment with oestrogens and progestogens in the climacteric. *Br Med J* 1980;280:822-824. **3.** Magos AL, Brincat M, Studd JWW, et al: Amenorrhea and endometrial atrophy with continuous oral estrogen and progestogen therapy in postmenopausal women. *Obstet Gynecol* 1985; 67: 496-499. **4.** Whitehead MI, Lane G, Siddle N, et al: Avoidance of endometrial hyperstimulation in estrogen-treated postmenopausal women. *Semin Reprod Endocrinol* 1983;1:1; 41-52. **5.** Barnes RB, Roy S, Lobo RA: Comparison of lipid and androgen levels after conjugated estrogen or depo-medroxyprogesterone acetate treatment in postmenopausal women. *Obstet Gynecol* 1985;66:216-219.

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Recent Highlights

U. OF I. COLLEGE OF MEDICINE

PHYSICIANS WHO ROUTINELY TOOK SEXUAL HISTORIES reported that one in three of their patients had a sexual question, concern or problem. But physicians who did not routinely include sexual histories said that fewer than one in 10 of their patients had sexual concerns. These are the results of a UI study headed by **Charles Driscoll, Family Practice.** Driscoll says that because physicians should look after all aspects of a patient's health, they need to let patients know that a discussion of sexual matters is appropriate.

FOUR GRANTS TOTALING NEARLY $30 MILLION over the next five years have been awarded the UI's Cardiovascular Research Center from the National Institutes of Health. The money will fund research in key programs of the center in the areas of heart disease, hypertension, stroke, arteriosclerosis and lung disease, says the ***Center's Director Francois Abboud, Internal Medicine.*** *One of the grants is to form a new Specialized Center of Research in occupational and immunologic lung diseases. This five year, $7.5 million NIH grant, is being directed by* ***Gary Hunninghake, Internal Medicine.*** *Among the occupational diseases to be studied are those common to Iowa's farms and factories. The UI researchers will attempt to determine the most effective technologies to aid early diagnosis of lung disease, predict its progression and optimize treatments.*

OTHER GRANT NEWS . . . Brain research continues at the UI with the support of a new $2.8 million federal grant under the direction of **Antonio R. Damasio, Neurology.** The money will enable UI researchers to map brain-mind processes to better understand the connection between specific areas of the brain and the ability to see, to remember, to communicate by language and to make decisions. . . . Nearly a million dollars in National Cancer Institute funds have been awarded to **Associate Dean Rex Montgomery, Biochemistry,** for research on several agents involved in the body's defense against cancer — interferon, interleukin-2, colony-stimulating and other growth factors.

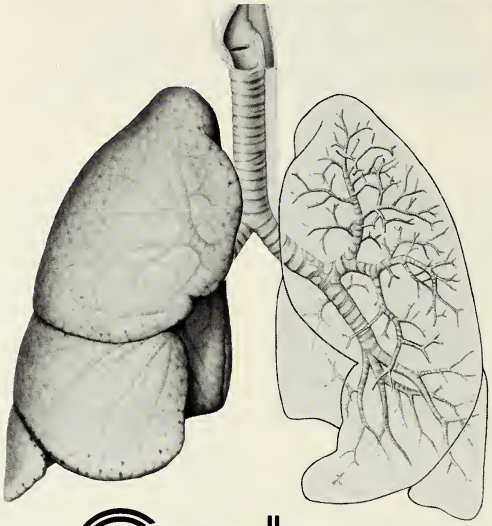
For information on cancer, call the University of Iowa Cancer Center's information service, toll-free, 1-800-237-1225, 8 a.m. to 5 p.m., Monday through Friday.

AT-A-GLANCE . . . The Iowa Academy of Family Practice has presented its Educator of the Year award to **Glenys O. Williams, Family Practice.** The award is given each year to recognize outstanding achievement in medical education. . . . **David Wacker, Pediatrics,** has been appointed to a three-year term on the Easter Seal Research Foundation board of trustees. . . . A $153,500 bequest from a former Cedar Rapids junior high school teacher, Dorothy Houts, will "significantly boost" arthritis research efforts, says **Robert Ashman, Internal Medicine. Dr. Wei yuan Yu** of the Institute of Basic Medical Sciences in Beijing, People's Republic of China, will hold the first Houts-Arthritis Foundation Fellowship established at the UI for research in osteoarthritis and rheumatoid arthritis.

A NEW UI GERIATRIC EDUCATION CENTER will offer interdisciplinary elderly care courses to Iowa health professionals, establish a geriatric resource center for the state and coordinate research data on Iowa's elderly. The center is being launched with a $549,561 grant from the National Institute of Aging. The center's director is ***Ian Smith, Internal Medicine.***

This report has been compiled by The University of Iowa Health News Service.

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Indications: Lower respiratory infections, including pneumonia, caused by susceptible strains of *Streptococcus pneumoniae, Haemophilus influenzae,* and *S. pyogenes* (group A beta-hemolytic streptococci).

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Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- In renal impairment, safe dosage of Ceclor may be lower than that usually recommended. Ceclor should be administered with caution in such patients.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, erythema multiforme, serum-sickness-like reactions): 1.5%; usually subside within a few days after cessation of therapy. These reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.
- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%.

Abnormalities in laboratory results of uncertain etiology

- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children)
- Abnormal urinalysis; elevations in BUN or serum creatinine
- Positive direct Coombs' test
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinitest® tablets but not with Tes-Tape® (glucose enzymatic test strip, Lilly)

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Information of Interest

STATE DEPT. OF PUBLIC HEALTH

SMOKING HAZARDS

SMOKING CAN PROBABLY be described as the largest single preventable cause of ill health in the world. It is estimated smoking is responsible for over 300,000 deaths annually in the United States; representing approximately 15% of all mortality. Tobacco cigarettes, smoked by over 50 million Americans, causes more illness and death than all other drugs. Cigarette smoking has been established as the most widespread example of drug dependence in our country. The addictive nature of cigarette smoking is why cigarette sales continue. Research suggests it is nicotine that reinforces and strengthens the desire to smoke and causes the user to keep on smoking.

Nicotine acts through specialized cell "receptors" located in the human brain and muscle tissues. Nicotine and opium derivatives are the only drugs of dependence for which specialized receptors of this kind have been identified and studied.

The serious health consequences of smoking occur over long periods of time and are due to many constituents of tobacco smoke besides nicotine. But, most important, is nicotine's action on the brain and nervous system in helping create dependence.

The 1986 Surgeon General's Report, *The Health Consequences of Involuntary Smoking*, is a critical review of the available evidence pertaining to the health effects of environmental tobacco smoke exposure on nonsmokers. The term "involuntary smoking" is used to note that such exposures often occur as an unavoidable consequence of being in close proximity to smokers, often in enclosed indoor environments.

This report is the work of more than 60 scientists, representing a variety of disciplines, both from this country and abroad. After careful examination of the scientific evidence 3 overall judgements can now be made.

- First: Involuntary smoking is a cause of disease, including lung cancer in healthy nonsmokers.
- Second: The children of parents who smoke, compared to children of nonsmoking parents, have an increased frequency of respiratory infections, increased respiratory symptoms, and slightly smaller rates of increase in lung function as the lung matures.
- Third: Simple separation of smokers and nonsmokers within the same air space may reduce, but does not eliminate, exposure of nonsmokers to environmental tobacco smoke.

It is now clear that disease risk due to the inhalation of tobacco smoke is not limited to the individual who is smoking, but can extend to those who inhale tobacco smoke emitted into the air.

The growth in our understanding of the disease risk associated with involuntary smoking has been accompanied by a change in the social acceptability of smoking and by a growing body of legislation, regulation and voluntary action that addresses where smoking may occur in public. Forty states and the District of Columbia have some form of legislation controlling or restricting smoking in various public settings.

The Department of Public Health is a member of the Iowa Clean Indoor Air Coalition.

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This information on public health matters is furnished and sponsored by the Iowa Department of Public Health.

STATE DEPARTMENT OF PUBLIC HEALTH

(Continued from page 199)

The Coalition is made up of voluntary health organizations, businesses, insurance companies, hospitals and others who are interested in the smoking issue. The Coalition has proposed legislation, House File 79, which has been introduced into the House of Representatives this session. The proposed law states that "a person shall not smoke in a public place or a public meeting except in a designated smoking area." Public places included in the bill are restaurants, all retail stores, offices, including waiting areas, commercial establishments, hospitals, clinics, and educational facilities. A public meeting is considered a gathering of members of a governmental body. This legislation does not call for a total ban on smoking, nor is it an attack on smokers. Rather, it calls for the designation of non-smoking and smoking sections so all Iowans may shop, eat out and socialize in their chosen environment.

Because smoking is a major public health concern, the Department of Public Health is very supportive of this legislation. Approximately 70% of the Iowa population do not currently smoke. A number of national surveys conducted by voluntary health organizations, government agencies, and even the tobacco industry have documented that an overwhelming majority of both smokers and nonsmokers support restricting smoking in public.

C. Everett Koop, the Surgeon General of the United States, concluded the preface of the 1986 Report of the Surgeon General by stating "The right of smokers to smoke ends where their behavior affects the health and well-being of others; furthermore, it is the smoker's responsibility to ensure that they do not expose nonsmokers to the potential harmful effects of tobacco smoke."

February 1987 Morbidity Report

Disease	Feb. 1987 Total	1987 to Date	1986 to Date	Most Feb. Cases Reported From These Counties
Aids	4	4	2	NA
Amebiasis	0	0	11	
Brucellosis	1	2	0	Tama
Chickenpox	1281	2117	2274	Scottered
Campylobacter	18	24	24	Scottered
Cytomegalavirus	3	4	6	Polk, Scott
Eotans Agent Infection	5	17	0	Linn, Mohosko, Polk
Encephalitis, viral	0	0	1	
Erythema Infectiasum	41	114	0	Scottered
Gastroenteritis (GIV)	2707	4996	6807	Scottered
Giordiosis	19	43	64	Scattered
Hepotitis, A	18	23	8	Scottered
Hepatitis, B	12	23	12	Scottered
Hepotitis, Non A-B	4	6	2	Pottawattomie, Scott, Wapello, Worth
Hepotitis type unspecified	0	1	0	
Herpes Simplex	94	171	201	Scattered
Herpes Zoster	0	0	0	
Histoplosmosis	2	3	3	Buchonan, Jasper
Infectious mononucleosis	32	55	80	Scottered
Influenza, lab canfirmed	19	55	131	Scottered
Influenza-like illness (URI)	6843	11313	53512	Scottered
Legionellosis	4	5	3	Dallas, Lyon, Polk
Molorio	0	0	1	

Disease	Feb. 1987 Total	1987 to Date	1986 to Date	Most Feb. Coses Reparted From These Caunties
Meningitis				
oseptic	2	3	3	Polk, Woodbury
bocteriol	3	11	14	Kassuth, Polk, Pottowottomie
meningococcol	0	2	4	
Mumps	20	39	5	Scattered
Pertussis	0	2	2	
Robies in onimals	17	30	18	Scottered
Reye Syndrame	0	0	0	
Rheumotic Fever	0	0	0	
Rubello (Germon measles)	0	0	0	
Meosles	0	0	0	
Salmonellosis	9	19	28	Scottered
Shigellosis	4	7	2	Woodbury
Toxic Shock Syndrome	1	2	3	Iawa
Tuberculasis				
total ill	1	6	5	Polk
bact. pos.	1	6	5	Scottered
Typhaid Fever	0	0	1	
Venereal diseases:				
Ganarrhea	289	554	606	Scattered
Chlomydio	330	582	402	Scottered
Syphilis	3	4	3	Morshall, Muscotine, Woodbury

Other Nan-Reportable Diseases: Rotravirus — 1, Polk; Ureaplosmo Ureolyticum — 1, Cerra Gordo; 1, Dubuque; 7, Johnson; 1, Linn; 1, Muscotine; 1, Woshington.

News About Colleagues

ABOUT IOWA PHYSICIANS

Dr. Rogel Belmonte recently began family practice in Belle Plaine. Dr. Belmonte received his medical education in the Philippines and served a family practice residency at St. Thomas Hospital in Akron, Ohio. Prior to locating in Belle Plaine, Dr. Belmonte was in private practice in Stow, Ohio, a surburb of Akron. . . . **Dr. George C. McGinnis,** longtime Fort Madison physician, has retired from medical practice. Dr. McGinnis received the M.D. degree at the University of Illinois at Chicago; interned at St. Francis Hospital in Evanston, Illinois, and served his surgery residency at Coleman Industrial Surgeons Clinic in Detroit, Michigan. He began medical practice in Fort Madison in 1949. Dr. McGinnis is a life member of the Iowa Medical Society and longtime Lee County delegate to the Iowa Medical Society House of Delegates. . . . **Dr. Glenys O. Williams,** associate professor of Family Practice at the U. of I. College of Medicine, was presented the Educator of the Year award by the Iowa Academy of Family Practice. Dr. Williams was recognized for her efforts in continuing medical education in family practice and geriatrics. . . . **Dr. Ronald J. Creswell** will join Spencer Medical Associates, P.C. in July. Dr. Creswell received the M.D. degree at the University of Nebraska Medical Center and is cur-

(Please turn to page 203)

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rently completing his familiy practice residency at the Sioux City Family Practice Residency Program.

Dr. Theresa A. Van Gundy has joined the Mater Clinic in Knoxville. Dr. Van Gundy received the M.D. degree at Loyola Stritch School of Medicine; interned at Weiss Memorial Hospital in Chicago, Illinois and completed her ophthalmology residency at Loyola/Hines Medical Center in Maywood, Illinois. . . . Two Des Moines physicians recently relocated their practices. **Dr. David Craven** has moved to 1301 Pennsylvania Avenue, Des Moines; and **Dr. Walter E. Thompson** has moved to 974 73rd Street, Suite 41, Des Moines. Prior to relocating in Des Moines, Dr. Craven practiced in Ames, Iowa. . . . **Dr. Adeline Comeau,** Clarinda, retired from medical practice in January. Dr. Comeau received the M.D. degree at Laval University in Quebec City where she also completed her anesthesia residency. Dr. Comeau began medical practice in Clarinda in 1959. . . . **Dr. Dorothy Reynolds** has joined the McFarland Clinic in Ames. Dr. Reynolds received the M.D. degree at Ohio State University in Columbus, Ohio; interned and completed her family practice residency at Toledo Family Practice Program in Toledo, Ohio. Prior to locating in Ames she was an assistant professor of family medicine at Northeastern Ohio University College of Medicine. . . . New officers of the medical staff at Clarinda Municipal Hospital are — **Dr. G. William Richardson,** chief of staff; **Dr. Earl E. Zehr,** vice chief of staff and **Dr. Willard G. Kuehn,** secretary-treasurer. All are Clarinda physicians. . . . **Dr. Ronald J. Kinateder** recently joined Dr. David Siroospour in surgery practice in Keokuk. Dr. Kinateder received the M.D. degree at the University of Missouri School of Medicine in Columbia, Missouri; interned at San Diego County Hospital in San Diego, California; and

(Please turn to page 204)

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completed his surgery residency at Robert Wood Johnson University Hospital in New Brunswick, New Jersey.

Dr. Harry B. Helling, Fort Madison, has retired from medical practice. Dr. Helling had practiced medicine in Fort Madison for 32 years. He was one of the organizers in 1964 of the Valley Medical Center. . . . **Dr. J. E. O'Donnell,** Clinton, has retired from medical practice. Dr. O'Donnell began medical practice in Clinton in 1940. He was a founding member of the Medical Associates Clinic. Dr. O'Donnell is a past president of the St. Joseph Mercy Hospital medical staff; past president of the Clinton County Medical Society and a life member of the Iowa Medical Society. . . . **Dr. Keith Riggin**s recently began orthopedic surgery practice in Fort Madison. Dr. Riggins received the M.D. degree at the University of Missouri School of Medicine and served his orthopedic surgery residency at Fitzsimmons Army Medical Center in Denver, Colorado. Prior to locating in Fort Madison, Dr. Riggins practiced in Chickasha, Oklahoma. . . . **Dr. Dale G. Wulf** was elected president of the Clinton County Medical Society. Other officers are —Dr. James Roeder, vice president and Dr. Peter Roode, secretary-treasurer. All are Clinton physicians. . . . **Dr. Jeffrey S. Carithers** recently began facial plastic surgery in Des Moines. Dr. Carithers received the M.D. degree at the U. of I. College of Medicine; served his surgery residency at Iowa Methodist Medical Center in Des Moines; and completed a residency in head and neck surgery at Ohio State University in Columbus, Ohio. . . . **Dr. Steven J. Phillips,** Des Moines, recently was appointed to the position of Principal Investigator for the Jarvik heart. His colleagues, Dr. Chamnahn Kongtahworn, Dr. Robert H. Zeff, Dr. James R. Skinner, Dr. Richard S. Toon, and Dr. André Grignon were appointed as Co-Investigators. All are Des Moines physicians.

DEATHS

The IOWA MEDICINE staff recently learned of the death of **Dr. Ralph R. Simmons,** editor of the

Journal of the Iowa Medical Society from 1928-1937. Dr. Simmons, 94, died May 20, 1986 at Hot Springs Veterans Administration Center in Custer, South Dakota. He received the M.D. degree at Syracuse University in Syracuse, New York. Following World War I, he was appointed director of medical laboratories at Iowa Methodist Medical Center in Des Moines. He joined the staff of the Equitable Life Insurance Co. of Iowa in 1927, and was medical director when he retired in 1956. Dr. Simmons was a life member of the Iowa Medical Society and past president of the Association of Life Insurance Medical Directors of America.

Dr. Donald W. Todd, 74, Guthrie Center, died January 15 at Iowa Methodist Medical Center in Des Moines. Dr. Todd received the M.D. degree at the University of Kansas School of Medicine and interned at Broadlawns Medical Center in Des Moines. Dr. Todd had practiced medicine in Guthrie Center for over 40 years. He was a member of the American Academy of Family Physicians and World War II veteran.

Dr. John G. Napier, 51, Cedar Falls, died January 20 at Methodist Hospital in Rochester, Minnesota. Dr. Napier received the M.D. degree at the U. of I. College of Medicine; interned at University of Washington in Seattle and completed his obstetrics and gynecology residency at the U. of I. He began medical practice in 1965. Dr. Napier was chief of staff at Sartori Memorial Hospital and a diplomat of the American College of Obstetrics and Gynecology.

Dr. Kenneth K. Hazlet, 74, longtime Dubuque physician, died January 25 at his home in Dubuque. Dr. Hazlet received the M.D. degree and completed his neurology residency at the U. of I. College of Medicine. He began medical practice in Dubuque in 1942. Dr. Hazlet had served as president of the Dubuque County Medical Society; president of the Mississippi Valley Heart Council; chief of staff at Finley Hospital and director of the Dubuque Health Department. He was a charter member of the Flying Physicians Association.



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A Monthly Commentary

IN THE PUBLIC INTEREST

Re-proving An Axiom

"Those who cannot remember the past are condemned to repeat it"

—Santayana

Guest columnist for this month's **In the Public Interest** *is Paul M. Seebohm, M.D., Associate Dean, U. of I. College of Medicine.*

THIS IS A PROPHESY repeated by the older generation in cautioning the young who are deviating from tradition. For some time, society has been dealing with health matters in a manner oblivious of the past and on a course to repeat it.

Though medicine has roots as old as Hippocrates, modern medicine was in its infancy even 100 years ago. Physicians were still questioning the Koch germ theory of disease, in spite of the fact life expectancy was 40 years due to epidemics of infectious diseases. The discovery of x-ray was 5 years away, as were D. D. Palmer's subluxations and nerve energy theories, and asepsis was getting slow acceptance. Oslerian medicine was improving diagnosis, but treatment of diseases was in infancy. However, doctors were plentiful — one for every 568 persons in the U.S. The homeopaths, the eclectics, the allopaths and bonesetters all had "scientific" drummers to follow.

Flexner Inspired Reforms

The Flexner exposé in 1910 revealed an abundance of doctors inadequately educated to practice scientific medicine and experts in manipulation and symptomatic therapy.

Reforms in medical education and medical research that followed the Flexner Report are now history. The diagnostic value of imaging with physical energy, identification of microorganisms, development of vaccines and bacteriocidal agents, perfection of aseptic surgery and synthesis of a host of rational pharmaceuticals and hormones gave a new scientific dimension to medicine.

Not so new is the Art of Medicine. Today's diseases may be different, but not the emotional pain and physical suffering. Empathy, counseling and other aspects of the doctor-patient relationship are no less critical to the practice of scientific medicine in 1987 than in 1887. Today's physician has the best scientific and traditional humanistic tools with which to practice.

Step Back From The Future?

There are those who want to curtail scientific advances to contain costs, suggesting more emphasis be placed on empathy for the terminally ill and less on operating rooms and intensive care units. It is true some medical technological breakthroughs have led to the development of expensive equipment. However, some expensive research has reduced medical care costs to zero — e.g. polio vaccine and the antituberculosis isoniazid.

Knowledge about the origin of most cancers and vascular disorders of the heart and brain is at the level of the germ-theory of disease a century ago. Halting scientific medical progress would leave physicians attacking today's diseases armed only with the Art of Medicine.

Do we need to re-prove the axiom "those who cannot remember the past are condemned to repeat it"?

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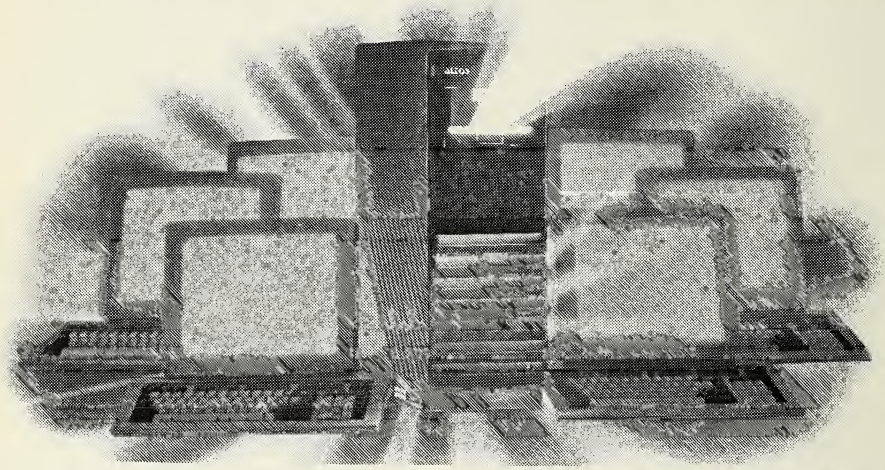
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Back to Basics

I BEGIN MY TERM in office with a feeling of pride. I am proud to be a member of the Iowa Medical Society. I am proud to serve as your president for the coming year. Most of all, I am proud to be a physician.

It was rewarding to attend the recent IMS Annual Meeting, receive the presidential torch from Dean Caraway and see the House of Delegates deal with the important issues placed before it. Delegates put in long hours formulating proposals regarding medical manpower, alternate delivery systems, unified membership, IMS dues and the IFMC.

The July IOWA MEDICINE will contain a complete summary of actions by the House. In the coming months, various IMS committees and officers will carry out the delegates' recommendations.

Some resolutions brought before the 1987 House reflected the frustrations in our health care system. Things are changing so rapidly (and not always in ways that benefit doctors and patients) it's easy to lose sight of a basic reason we became physicians — to help people.

Despite the frustrations, it's still honorable, satisfying and fun to be a doctor. I still feel good when patients come to me because they know I'll do my best to help them whether Medicare, Medicaid or anyone else only pays 50 cents on the dollar.

It is organized medicine's role to represent our viewpoints on knotty socioeconomic issues facing the health care system. As members of organized medicine, we have a responsibility to assist in attainment of various goals.

Yet, we will do ourselves and our patients a disservice if we forget what we really are — doctors. When patients come to us for treatment or advice, they aren't looking for a sharp politician or a shrewd businessman. They're looking for a doctor who cares.

D J Walter MD

Dennis J. Walter, M.D.
President

Risk Management: A General Overview

PABLO R. RECINOS, M.D.
Mason City, Iowa

The author, board member and former risk management chairman for Iowa Physicians Mutual Insurance Trust, discusses general problems that often lead to lawsuits and gives advice on how to diffuse potentially volatile situations.

TODAY'S PHYSICIANS are perceived as more interested in the economical aspect of our profession than the caring and warmly human physician of the past. A physician addressing the AMA Auxiliary said, "Physicians have calculated that emphatic and compassionate care takes more time and brings less income, forcing them to admit uncertainty and requiring more effort in keeping up to date." I am convinced this is not true for Iowa physicians whose traditional values are as strong as ever. If they are not in rare cases, we must strengthen them.

Anger

Anger is an expression of discontent which often results from miscommunication or surprise over unexpected results, unexpected bills, etc. We must listen when a patient expresses anger. Usually, the patient or family only wants to be listened to. Listening will usually diffuse a potential problem situation. Physicians are good listeners when trying to make a diagnosis; we listen carefully to our patient's history. We must not turn off our listening ears when we have enough information to make a reasonable working diagnosis. Keep the lines of communication open.

Waiting Time — A Double Standard

Is the provider of medical care judged by different standards when it comes to waiting time for services provided? Do we like to wait when we seek commodities or services, including medical care? Be as prompt and conscientious as possible in patient scheduling; advise waiting patients of emergency developments.

Jousting

It makes no sense to blame lawyers or the public if physician colleagues forget the practice of medicine is an art as well as a science. We must aim for excellence and keep up to date. We also must educate ourselves to accept the opinions of colleagues. There are different ways of doing the same job.

Informed Consent

Informed consent should be realistic. Discuss alternatives and other therapy options with the patient. This should be done in the office where there are fewer pressures and plans can be reviewed calmly. Document the

Dr. Recinos practices general surgery in Mason City.

discussion in the patient's progress notes or have the patient sign a form in the office.

Medical Records

Medical records should be accurate, legible, concise, timely, unaltered and objective. Defense attorneys say we could win one-third more suits if we had good medical records. Medical records reflect chronology and treatment planning and should indicate the physician's thought processes. Records are a means of communication among physicians and paramedical personnel. Records are important legal documents. We are only as good as our records, especially 2, 3 or 4 years down the line.

System Failure

Always see lab results before the patient goes to surgery. Develop a fool-proof system and a checklist so all the results (including the history and physical) are on the chart before the patient goes to the operating room. Don't miss abnormal lab reports in the office.

Follow-up

This is particularly important for postoperative patients. Be aware of "no-shows." This could mean an unhappy patient.

Finances

Think before billing when there have been questionable results. Be up front with finances and discuss them with the patient in preoperative planning. This will help assure the patient has no surprises.

Risk Management Tips

- Don't leave town after major operations.
- Don't promise unrealistic results.
- Return p.r.n.'s means nothing, especially in postoperative patients. Be specific.
- All chest pain is of a coronary nature until proven otherwise.
- Any head injury is intracranial hematoma until proven otherwise.
- Abdominal pain is surgical until proven otherwise.
- Major spine injuries will result in major paralysis until proven otherwise.
- Breast lumps must be carefully monitored.
- Be aware of unresolved pneumonias.
- Be concerned about colon cancer diagnosis.

These last 3 areas are common sources of unwinable suits in primary care practice. Other primary care risk factors are:

- Diabetic ketoacidosis.
- Mismanagement of extremity lacerations.
- Fractures and dislocations with vascular injuries, especially around the popliteal area.
- Mismanagement of medications. (This accounts for 10% of malpractice suits.)
- Failed sterilization, missed tubal pregnancies.

Things That Trigger Suits

- Anger.
- Magnitude of the Injury.
- Negligence.
- Surprise.
- Jousting from institutions, physicians or paramedical personnel.
- Billing.
- Vicarious suits.

Other Key Elements

Early reporting to your insurance carrier is a key element in early resolution of problems. By not reporting an incident that could trigger a suit, we are letting a seed of liability germinate into a full-grown problem.

Examples of occurrences that should be immediately reported to your insurance carrier are:

- Any major unanticipated fetal damage (brain damage, nerve injury or death).
- Any unanticipated death.
- Any unanticipated major surgical complication (brain damage, major paralysis, urinary incontinence, perforation of esophagus, common duct, uterus or other organs, blindness, deafness, loss of an extremity).
- Failure to diagnosis when the opportunity was present (breast cancer, major infections such as meningitis or appendicitis, missed fracture, missed myocardial infarction, intracranial hematoma, missed radiological or pathological diagnosis).
- Any fall in the hospital or office which results in an injury.

Finally, we need to remember over 50% of the factors contributing to malpractice suits are within our province.

Before And After A Lawsuit: Risk Management Checklist

THOMAS A. FINLEY, J.D.
Des Moines, Iowa

Drawing on his own experience defending physicians in malpractice suits, the author lists the best ways to keep from being sued and crucial steps to follow if you are sued.

A PHYSICIAN IS A PROFESSIONAL and must be held to the standards of a professional. Consistently avoid any situation in which you do not render the best services you are capable of rendering. Remember, there is no longer a community or locality standard. You are judged by other similarly trained physicians under the same or similar circumstances.

Communicate

- Make an effort to show your patients and their families you are a caring, compassionate physician who understands their concerns.
- Spend more time with problem cases than with non-problem cases.
- Give the patient with a poor result extra time. Don't project an appearance of being too rushed to do your job right. Patients and family members wait hours to see the physician.
- Try to establish good rapport with hospital nurses. They do a lot of charting.
- Take a look at the nurse's notes, particularly with the problem patient. Indicate in your progress notes you have reviewed the nurse's notes.
- When you refer a patient to a specialist, provide as much information as possible. Don't be reluctant to refer. A significant number of malpractice suits are filed because the physician did not refer or waited too long to refer.
- If you are a specialist, be supportive of the referring physician. Don't make rash statements about the quality of care by another physician. Until you know otherwise, assume and tell your patients the other physician acted according to the best medical judgment.
- Always ask your patients if they understand what you told them. Offer to answer questions. Remember to obtain informed consent.
- Be aware of any patient keeping a diary or taking notes while in the hospital. Our experience shows these patients tend to bring lawsuits.
- Remember the 3 R's in order of importance; Reason, Rapport and Records.

Document

- Document meticulously. State facts, indicate time and date each entry is made. The medical record is the situation memorialized in writing. It is a record of what occurred at the time — not testimony given years later with benefit of retrospection and possible self-

Mr. Finley is primary defense counsel for Iowa Physicians Mutual Insurance Trust, the IMS liability insurer. He practices with the firm of Duncan, Jones, Riley and Finley.

serving interest. It must be complete, clear and consistent. It must be legible.

- Record in the chart time spent visiting with the family.
- If you are considering several treatment alternatives, note those alternatives in the chart. Record your reasoning in choosing one alternative over others. Record discussions with the patient or family about the alternatives.
- Whenever you make a hospital visit, write a progress note and time it. In malpractice defense it is frequently crucial to establish whether a progress note was written before or after an event. Unfortunately, most physicians don't time their chart entries.
- Keep good office records, including records of phone calls and failure to keep appointments. Don't include billing references in your medical records.
- Don't vent your spleen in the chart. (At least, save it for the incident report.)

What To Do When Served With A Lawsuit

- Inform your insurance carrier immediately.
- Don't discuss the case with anyone except your attorney and insurance carrier.
- Collect all articles, treatises and journals you can relative to the problem involved.
- Gather the patient's office records. DO NOT attempt to revise, obliterate or "improve" the records. Changes in the records are inherently suspicious and very difficult to explain on the witness stand.

The Pre-trial Period

- Meet with your attorney to explain the care you gave. It is important to establish early the attorney controls the direction of the legal action. You are the client in this relationship.
- Be prepared to explain inconsistencies to your attorney. The attorney needs to know the weaknesses and strengths of your case. The key to a successful defense is a coordinated "team" approach.
- Give your attorney a list of experts who can evaluate the problem. Experts must be well-qualified and articulate because they may be asked to testify on your behalf.
- During your deposition, listen carefully to questions. Only answer if you understand the question. Answer only the question and stop — don't volunteer information, guess or speculate. Be calm, don't get angry or frightened.

At Trial

- You are not in court to put on a show. Demonstrate to the jury you are a concerned, caring professional. Be a little more deferential than usual without being obsequious. Project the image of a friendly, compassionate physician who cares about the art of the healer.
- Dress well but conservatively. Leave jewelry at home.
- Gesturing, giggling or grimacing during your own or other testimony is counter-productive.
- Bring a legal pad and pen and take notes. This will help you prepare for your testimony and help your attorney when you discuss the trial at the end of each day. Note-taking helps you feel involved, helps lessen anxiety and shows the jury you are serious.
- When answering questions, look directly at the jury, not the lawyer. Eye contact with jurors enhances the credibility of your answers.
- When testifying at trial, try to put yourself in the role of a teacher instructing pupils. You are the expert. Testify firmly, forthrightly and sincerely. You will give the impression you have nothing to hide and are confident the jury will decide in your favor if they know the facts and your thought processes during your care and treatment of the patient.

FUNDS ARE AVAILABLE AGAIN THIS YEAR *for many disabled children and young adults from low-income families to receive free dental treatment.* ***Arthur Nowak,*** *D.M.D., Department of Pediatrics, is director of the Dental Care for Persons With Disabilities program. The UI is continuing its cooperation with the Iowa State Department of Health to sponsor the statewide dental program. Eligible persons up to age 21 can receive preventive and restorative dental care at no cost. Dr. Nowak urges professionals who know of children eligible to participate in the free dental program to contact him now while funds are available (319/356-1517).*

Risk Management in Everyday Practice

ELVOY RAINES, J.D.
Durham, North Carolina

While there are no absolute safeguards against malpractice suits, failure to use good risk management techniques in everyday practice can lead a physician to the steps of the courthouse. This author discusses risk management in the office and hospital settings.

TODAY'S PATIENTS are more willing to sue physicians. The reasons are varied and many socioeconomic factors have contributed to the diminution of trust and deference afforded the medical profession in the past. The result is a crisis of trust between physicians and patients.

More frequently, patients exhibit a need to hold someone accountable for unsatisfactory outcomes; there is also anger and a genuine belief malpractice has been committed. Some litigation is an effort simply to find out what happened, because poor physician-patient communication left unanswered questions. Some suits are filed to obtain money to pay unanticipated health care bills.

Mr. Raines is risk management consultant for Iowa Physicians Mutual Insurance Trust, the IMS liability insurer. He is one of the nation's top risk management spokesmen.

At the core of most lawsuits is either surprise or disappointment. The patient is surprised by the cost of hospitalization or disappointed in the outcome because all reasonable risks were not fully explained during the informed consent process.

Patient perceptions of insult or injury precipitate most litigation, though the idea of suing may come from family, friends or even hospital personnel or subsequent treating physicians. A most unfortunate but quite common cause of litigation is anger in response to discourtesy and aggressive billing practices. Threats of collection combined with discourtesy from the physician's office staff can prompt the patient to fight back with a lawsuit. It is important no formal collection process begin without the physician reviewing the patient's file and, if necessary to clarify misunderstandings, speaking with the patient.

Incorporating risk management into everyday practice should be every physician's goal. Physicians already have the training to be effective risk managers and simply must become aware certain aspects of practice are critical to minimizing risks of injury, whether real or perceived.

Recordkeeping

Timely and effective documentation is a crucial element of risk management. It contributes to good patient care by improving communication among members of the health care team, explaining the chosen treatment and enhancing continuity of care when other providers are involved. Most significantly, recordkeeping is one aspect of liability risk within the control of the physician.

The rule of thumb with records is if it is not documented, it was not done. Therefore, all clinically significant facts should be noted: what was done, why, when and by whom. Patient actions and reactions, progress, developments in condition and information on provider compliance with hospital rules, regulations and protocols — however routine — should all be documented. Operative notes always should be dictated and transcribed in a timely fashion.

Computerized records provide rapid and sophisticated data collection and retrieval; however, computers also present special problems of confidentiality, access and space. When records are computerized, systems should be designed to overcome these problems.

Record entries should be consistent in style, legible, chronological and in ink. Avoid opinions and characterizations which have no clinical importance. If changes are necessary, the original information should be lined through but still legible and the new information entered, dated and signed with an explanation of the revision. While it is reasonable to make changes in a record as new information comes to light, no changes should ever be made after a claim is filed.

There are instances where special considerations affect the method of documentation: standing orders may save time but must be periodically reviewed for appropriateness and compliance with hospital procedures; verbal orders, by telephone and in person, require special documentation and confirmation; and countersigning of orders should be done with careful review of content.

Consultations should be carefully documented, as well as information about drug allergies and interactions, patient questions, complaints and noncompliance and informed consent. Remember the consent given is only as good as the underlying process.

Obviously, incomplete charts — information out of order, missing pages, inadequate histories, etc. — can undermine the physician's treatment. To evaluate the quality of documentation habits, a physician should pull a few old records at random and review them for clarity and completeness. This exercise in recordkeeping risk management can reveal areas of vulnerability in documentation methods.

Office Risk Management

Of particular concern is office staff awareness of risk management principles and techniques. The physician can be an expert risk manager and still have dissatisfied patients if the staff does not appreciate its important role in risk management. The courtesy and professionalism of the office staff directly affect patient satisfaction.

From the initial visit, it is the physician's ultimate responsibility to obtain all relevant information; while history-taking may be simplified by having patients fill out forms and nurses collect basic data, the final responsibility lies with the physician. Therefore, information collected should be reviewed by the physician with the patient, clarifying details and prompting or lightly interrogating the patient to reach a satisfactory level of knowledge about the patient and his or her history.

This initial session with the patient is also an opportunity to ascertain the patient's expectations. If the patient's expectations cannot be met by the physician, that is the appropriate time to work toward adjusting the expectations or refer the patient to another provider.

The physician should be truthful and thorough with the patient. In the past there may have been a tendency to "protect" patients; today, the exercise of therapeutic privilege (withholding information from the patient) should be done cautiously. Adequate explanation, discussion and, whenever possible, time for the patient to digest information and think of further questions, should be allowed. All such discussions should be fully documented.

Hospital Risk Management

To most patients, the hospital environment is intimidating. Physicians must remain sensitive to anxieties that arise from hospitalization. The patient should be adequately prepared for what to expect in the hospital.

During the first day of hospitalization, there should be close attention to the initial progress notes as they form the inpatient baseline for subsequent care. Incomplete notes in the first 24 hours can increase the risk of injury or perceived injury. The initial workup must be thorough, with consultations as indicated. Hospital politics sometimes prevents full uti-

(Please turn to page 226)

RISK MANAGEMENT IN EVERYDAY PRACTICE

(Continued from page 225)

lization of consultation but physicians often wish they had overcome such obstacles.

Standing orders should be reviewed for appropriateness to the individual patient and checked periodically to determine whether they are still applicable. Each visit with the patient should be documented with comments and progress notes updated immediately after the visit. Before seeing the patient, a quick review of the notes is useful.

> ***"In the case of surgical injury, there should be no attempt to conceal the fact something has occurred."***

In the surgical suite, there is an organizational scheme and line of command that must be followed. Interactions with other members of the health care team must be professional and carefully documented. If equipment fails, affected members of the team should be informed, the equipment isolated and marked, and someone assigned to follow up on repair or replacement.

Operative reports, discharge summaries and related documentation must follow the patient in a timely fashion and adequate time allowed postoperatively for accomplishment of these chores. Finally, the patient should be prepared for discharge.

After an Incident

The manner in which the physician and staff respond to an incident can be strongly predictive of whether there will be a lawsuit. Incidents are usually of 2 types: a disagreement with the patient and breakdown of the relationship, or a surgical injury.

In the case of surgical injury, there should be no attempt to conceal the fact something has occurred. The surgeon should mitigate the damage as soon as possible and have a calm, uninterrupted conversation with the patient to explain precisely what happened. The physician may also speak to the spouse, parents, children or friends of the patient when circumstances dictate. The extent of the injury should be neither exaggerated nor understated, and appropriate consent should be obtained for later repair procedures.

Guidelines for managing the other type of incident are less specific. Initial steps include recognition of the incident (usually there is a letter from an attorney requesting copies of patient records), informing the insurance carrier and providing copies of records only after authorization by the patient. Only copies should be provided and original documents should be carefully preserved. If a claim is filed, the physician should make no statements about the care provided until represented by an attorney.

Finally, it is essential to effective risk and incident management the physician cooperate with the insurance carrier. If the insurance company expects to be successful, it will encourage such cooperation and provide services which help the physician minimize risks. Physicians who will succeed in practice can and will have to incorporate effective risk and incident management into everyday practice in a manner least disruptive but most certain to avoid the risk of injuring someone or inviting litigation.

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Questions and Answers



IPMIT — Two Years And A Little More

The first IPMIT/AMACO professional liability insurance policy was activated February 1, 1985. This first policy was assigned to the Scientific Editor of* IOWA MEDICINE. *Subsequently, the population of insured physicians has reached 850 in 27 months. Organizational progress has been steady, even dramatic in the past few months. Designated as medical coordinator in February, Dr. Wulfekuhler discusses this important IMS-sponsored program.

How do you sum up the financial status of the Iowa Physicians Mutual Insurance Trust?

Favorable. IPMIT submitted its second annual statement to the State of Iowa in February, 1987. IPMIT's assets are $5.7 million, up $1.1 million over the preceding statement. Our surplus is $3.5 million, a gain of $2.5 million over the preceding year. This financial report is regarded favorably by our actuarial advisors. These gains reflect the growth from 600 physicians insured in 1986 to over 800 in 1987.

What else?

An historical milestone was marked December 17, 1986, when Iowa Insurance Commissioner William Hager authorized IPMIT to operate as an independent insurance company. This ended our complementary program with the American Medical Assurance Company (AMACO). Our original plan was to achieve independent status in 3 to 5 years. We have increased our liability retention from $25,000 to $100,000. We have expanded our relationship with the North American Reinsurance Company, the second largest in the U.S.A.

In view of this favorable progress, why have IPMIT coverage costs increased so much?

Originally our actuaries recommended an increase of 20% for 1987. However, when we applied for independent status, the Insurance Commissioner required that we increase the contribution to surplus from 30% to 50% of the premium for the first $100,000 of coverage. Additionally our reinsurer imposed a new and higher relativity formula, which increased the percentage levels in the progression to mature claims made.

These two demands on us resulted in changes to our policyholders much greater than anticipated. We are fully aware of the high cost for this protection, but still feel our insureds are getting their money's worth.

(Please turn to page 230)

QUESTIONS AND ANSWERS

(Continued from page 229)

How are IPMIT's operational elements working?

IPMIT has employed an excellent staff of insurance professionals to operate the company. A 9-member Board of Directors includes 7 physicians.

Nearly 50 physicians are active in our program. The Underwriting Committee works with the underwriting staff and the reinsurer. The Claims Committee works in support of the claims manager and defense counsel. The Risk Management Committee works with the risk manager staff and coordinates educational programs, the hot line and the office survey.

What about any special concerns or activities?

The largest number of claims remains in obstetrics. A 12-physician committee of obstetricians and family practitioners doing obstetrics is currently seeking a solution to this problem. This committee is working on a classification system that is equitable to all physicians doing obstetrics. They are also exploring implementation of guidelines for high risk obstetrics.

Remind us again of the goal for IPMIT.

The 1984 House of Delegates mandated IPMIT to form a physician controlled company that would provide stable and responsible liability insurance to Iowa physicians. We feel we have carried out this mandate and we pledge to continue to provide Iowa physicians the best liability insurance available.

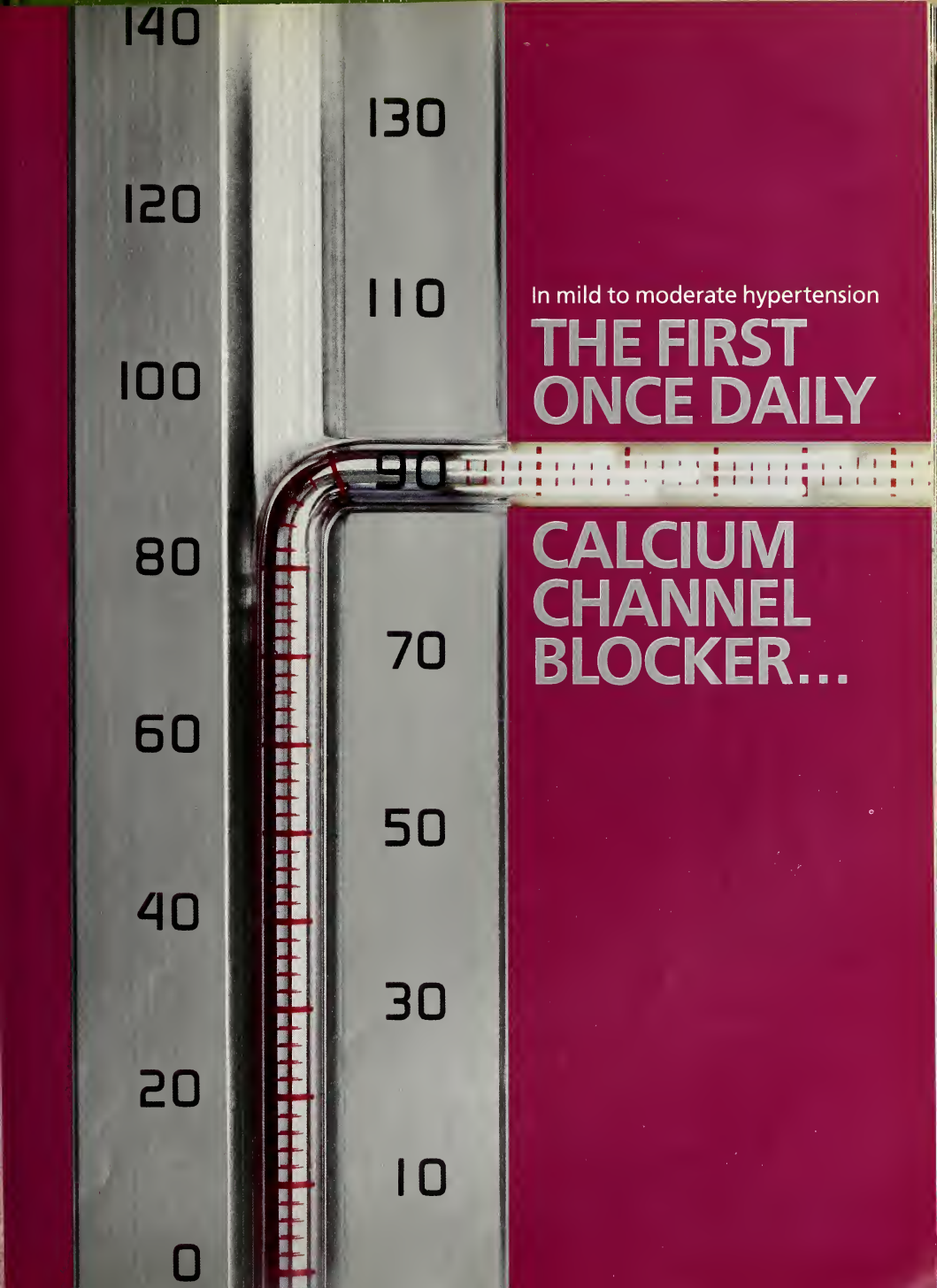


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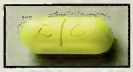
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In mild to moderate hypertension
THE FIRST ONCE DAILY
CALCIUM CHANNEL BLOCKER...

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ISOPTIN® SR*

(verapamil HCl/Knoll)

240 mg scored, sustained-release tablets



JAMES B.
38, black male, heavy smoker. Prescribed a diuretic by another physician last year for hypertension.

YOUR CONCERNS
Presents with "smoker's cough." Workup reveals a BP of 150/107.

A LOGICAL CHOICE FOR CONTROL OF HIS BP
ISOPTIN® (verapamil HCl/Knoll) because...
— Black hypertensives often have low plasma renin activity and generally do not respond favorably to beta blockers.
— Beta blockers may increase the likelihood of bronchospasm.

ALICE W.
65, diabetic, overweight. Her BP has elevated to 190/98.

YOUR CONCERNS
She's on daily insulin.

A LOGICAL CHOICE FOR CONTROL OF HER BP
ISOPTIN® (verapamil HCl/Knoll) because...
— Unlike most beta blockers and diuretics, ISOPTIN has no adverse effects on serum glucose levels.
— Unlike most beta blockers, ISOPTIN does not mask the symptoms of hypoglycemia.





THOMAS G.
70, asthmatic. In the past, BP adequately controlled with 25 mg hydrochlorothiazide daily.

YOUR CONCERNS
Today patient presents with symptoms of gout. Workup reveals high uric acid level, low serum potassium, and BP elevated to 180/98.

A LOGICAL CHOICE FOR CONTROL OF HIS BP
ISOPTIN® (verapamil HCl/Knoll) because...
— Unlike diuretics, ISOPTIN will not decrease serum potassium levels or elevate uric acid levels.
— Unlike beta blockers, ISOPTIN can be used safely in asthma and COPD patients.

JOHN K.
42, Annual physical uncovered diastolic BP of 102... confirmed on three successive office visits. Unresponsive to nonpharmacologic intervention.

YOUR CONCERNS
Salesman, spends many hours of his working day in car... total cholesterol level 300, HDL 35.

A LOGICAL CHOICE FOR CONTROL OF HIS BP
ISOPTIN® (verapamil HCl/Knoll) because...
— Unlike diuretics, ISOPTIN does not cause urinary urgency.
— Unlike either beta blockers or diuretics, ISOPTIN will not adversely affect his already seriously compromised lipid profile.
— Unlike with propranolol, fatigue and impotence are rarely reported.



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Please see adjacent page for brief summary.

In mild to moderate hypertension

Brief Summary

THE FIRST ONCE DAILY CALCIUM CHANNEL BLOCKER

ISOPTIN® SR (verapamil HCl/Knoll) 240 mg scored, sustained-release tablets

CONTRAINDICATIONS: 1) Severe left ventricular dysfunction (see WARNINGS), 2) Hypotension (less than 90 mmHg systolic pressure) or cardiogenic shock, 3) Sick sinus syndrome or 2nd or 3rd degree AV block (except in patients with a functioning artificial ventricular pacemaker).

WARNINGS: Heart Failure: ISOPTIN should be avoided in patients with severe left ventricular dysfunction (see DRUG INTERACTIONS). Patients with milder ventricular dysfunction should, if possible, be controlled before verapamil treatment. Hypotension: ISOPTIN (verapamil HCl) may produce occasional symptomatic hypotension. Elevated Liver Enzymes: Elevations of transaminases with and without concomitant elevations in alkaline phosphatase and bilirubin have been reported. Periodic monitoring of liver function in patients receiving verapamil is therefore prudent. Accessory Bypass Tract (Wolff-Parkinson-White): Patients with paroxysmal and/or chronic atrial flutter or atrial fibrillation and a coexisting accessory AV pathway have developed increased antegrade conduction across the accessory pathway producing a very rapid ventricular response or ventricular fibrillation after receiving intravenous verapamil. While this has not been reported with oral verapamil, it should be considered a potential risk. Treatment is usually D.C.-cardioversion. Atrioventricular Block: The effect of verapamil on AV conduction and the SA node may cause asymptomatic 1st degree AV block and transient bradycardia. Higher degrees of AV block, while infrequent (0.8%), may require a reduction in dosage or, in rare instances, discontinuation of verapamil HCl. Patients with Hypertrophic Cardiomyopathy (IHSS): Although verapamil has been used in the therapy of patients with IHSS, severe cardiovascular decompensation and death have been noted in this patient population.

PRECAUTIONS: Impaired Hepatic or Renal Function: Verapamil is highly metabolized by the liver with about 70% of an administered dose excreted in the urine. In patients with impaired hepatic or renal function verapamil should be administered cautiously and the patients monitored for abnormal prolongation of the PR interval or other signs of excessive pharmacological effects (see OVERDOSAGE).

Drug Interactions: Beta Blockers: Concomitant use of ISOPTIN and oral beta-adrenergic blocking agents may be beneficial in certain patients with chronic stable angina or hypertension, but available information is not sufficient to predict with confidence the effects of concurrent treatment in patients with left ventricular dysfunction or cardiac conduction abnormalities. Digitalis: Clinical use of verapamil in digitalized patients has shown the combination to be well tolerated if digoxin doses are properly adjusted. However, chronic verapamil treatment increases serum digoxin levels by 50 to 75% during the first week of therapy and this can result in digitalis toxicity. Upon discontinuation of ISOPTIN (verapamil HCl), the patient should be reassessed to avoid underdigitalization. Antihypertensive Agents: Verapamil administered concomitantly with oral antihypertensive agents (e.g., vasodilators, angiotensin-converting enzyme inhibitors, diuretics, beta blockers, prazosin) will usually have an additive effect on lowering blood pressure. Patients receiving these combinations should be appropriately monitored. Disopyramide: Disopyramide should not be administered within 48 hours before or 24 hours after verapamil administration. Quinidine: In patients with hypertrophic cardiomyopathy (IHSS), concomitant use of verapamil and quinidine resulted in significant hypotension. There has been a report of increased quinidine levels during verapamil therapy. Nitrates: The pharmacologic profile of verapamil and nitrates as well as clinical experience suggest beneficial interactions. Cimetidine: Two clinical trials have shown a lack of significant verapamil interaction with cimetidine. A third study showed cimetidine reduced verapamil clearance and increased elimination to 1/2. Anesthetic Agents: Verapamil may potentiate the activity of neuromuscular blocking agents and inhalation anesthetics. Carbamazepine: Verapamil may increase carbamazepine concentrations during combined therapy. Rifampin: Therapy with rifampin may markedly reduce oral verapamil bioavailability. Lithium: Verapamil may lower lithium levels in patient on chronic oral lithium therapy. Carcinogenesis, Mutagenesis, Impairment of Fertility: There was no evidence of a carcinogenic potential of verapamil administered to rats for two years. Verapamil was not mutagenic in the Ames test. Studies in female rats did not show impaired fertility. Effects on male fertility have not been determined. Pregnancy (Category C): There are no adequate and well-controlled studies in pregnant women. ISOPTIN crosses the placental barrier and can be detected in umbilical vein blood at delivery. This drug should be used during pregnancy, labor, and delivery, only if clearly needed. Nursing Mothers: ISOPTIN is excreted in human milk, therefore, nursing should be discontinued while verapamil is administered. Pediatric Use: Safety and efficacy of ISOPTIN in children below the age of 18 years have not been established.

ADVERSE REACTIONS: Constipation 8.4%, dizziness 3.5%, nausea 2.7%, hypotension 2.5%, edema 2.1%, headache 1.9%, CHF/pulmonary edema 1.8%, fatigue 1.7%, bradycardia 1.4%, 3° AV block 0.8%, flushing 0.1%, elevated liver enzymes (see WARNINGS). The following reactions, reported in less than 1.0% of patients, occurred under conditions (open trials, marketing experience) where a causal relationship is uncertain; they are mentioned to alert the physician to a possible relationship: angina pectoris, arthralgia and rash, AV block, blurred vision, cerebrovascular accident, chest pain, claudication, confusion, diarrhea, dry mouth, dyspnea, ecchymosis or bruising, equilibrium disorders, exanthema, gastrointestinal distress, gingival hyperplasia, gynecomastia, hair loss, hyperkeratosis, impotence, increased urination, insomnia, macules, muscle cramps, myocardial infarction, palpitations, paresthesia, psychotic symptoms, purpura (vasculitis), shakiness, somnolence, spotty menstruation, sweating, syncope, urticaria. Treatment of Acute Cardiovascular Adverse Reactions: Whenever severe hypotension or complete AV block occur following oral administration of verapamil, the appropriate emergency measures should be applied immediately, e.g., intravenously administered isoproterenol HCl, levarterenol bitartrate, atropine (all in the usual doses), or calcium gluconate (10% solution). If further support is necessary, inotropic agents (dopamine or dobutamine) may be administered. Actual treatment and dosage should depend on the severity and the clinical situation and the judgment and experience of the treating physician.

OVERDOSAGE: Treatment of overdosage should be supportive. Beta-adrenergic stimulation or parenteral administration of calcium solutions may increase calcium ion flux across the slow channel, and have been used effectively in treatment of deliberate overdosage with verapamil. Clinically significant hypotensive reactions or fixed high degree AV block should be treated with vasopressor agents or cardiac pacing, respectively. Asystole should be handled by the usual measures including cardiopulmonary resuscitation.

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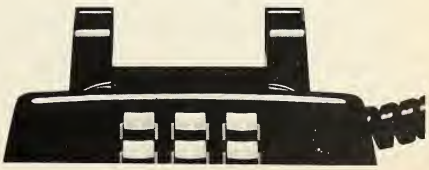
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May, 1987

Dear Iowa Physicians,

Commitments. Every St. Paul insurance policy comes with several. However, in today's tumultuous insurance market, one is of greater importance to our Iowa physician and surgeon policyholders: that we will continue to provide you with the highest quality insurance products and services.

That commitment already has been proven and tested. The St. Paul has been insuring Iowa physicians and surgeons for more than 40 years.

The St. Paul's commitment has been characterized by innovative insurance coverages and plans, new approaches to risk management and pricing, financial stability and market longevity. It also reflects fair, accurate, timely and expert claim-handling throughout the state.

To maintain our commitment to our policyholders, we have had to make some tough...and perhaps to some, seemingly contradictory...decisions in the last year. These decisions include our new business moratorium, rate increases and stricter underwriting.

Why these actions at a time when the industry needs the availability and capacity of companies like The St. Paul?

Because a line of insurance as highly volatile as medical malpractice demands a most prudent approach when its results have been deteriorating and the overall market is in disarray. The premiums we charge for coverage must keep pace with rising claim costs. And, while rate increases are never popular, they are necessary along with our other actions to allow us to remain a medical liability insurance market for you. That's where our highest commitment lies: to the many Iowa physicians and surgeons who already are St. Paul policyholders. And, that's the reason for this letter: to reaffirm that **our commitment to you remains firm** and our communication lines remain open through your independent insurance agent as always.

Sincerely,

James S. Mason

James S. Mason
General Manager
DES MOINES SERVICE CENTER

Trauma Prevention from the Use of Seat Belts

TIMOTHY D. PETERSON, M.D.
Des Moines, Iowa

Iowa's safety belt law has the potential to substantially reduce injury and death on the road. This article reviews the scope of injury and cost to Iowans involved in motor vehicle accidents and shows data from a rural Iowa study supportive of the positive benefits of seat belt use.

MOTOR VEHICLE ACCIDENTS are the leading cause of death in Americans ages 1 to 35. In Iowa in 1985, there were 369 persons killed in motor vehicle accidents (MVAs). Only 4% of those were wearing safety belts. An estimated 100 Iowans could be saved yearly by safety belts.

Traffic accidents cost Iowans about $300 million annually in related costs including emergency, health, welfare and legal services, administrative costs, lost productivity and higher medical and automotive insurance rates. An estimated $40 million could be saved through seat belt use. The U.S. Department of Transportation's National Highway Safety Administration estimates the average U.S. citizen has a 1-in-3 chance of suffering a disabling injury as a result of a motor vehicle collision.

Increasing public awareness on the benefits of safety restraints is a significant health challenge. The new seat belt law and efforts by national, state, and local interest groups are beginning to impact motor vehicle trauma reduction. Deaths in Iowa from MVAs during July-October of 1981-85 averaged 123 compared to 102 during the same period of 1986. This 17% reduction in fatalities corresponds to a 28% increase in seat belt use since the new law went into effect July 1, 1986. Seat belts save lives.

Some citizens and politicians are challenging the law. A request was filed this year in the Iowa Legislature to alter or repeal Iowa's safety belt law. The right to choose is an emotional issue for some, not a responsible attitude based upon the fact the law has a life saving and economic impact for Iowans.

Belted vs. Unbelted— A Study of Costs and Injuries

The Department of Emergency Medicine at Keokuk Area Hospital felt public awareness

Dr. Peterson is director of emergency medicine at Keokuk Area Hospital and practices emergency medicine at Iowa Methodist Medical Center in Des Moines, Iowa.

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR THE MONTH OF MAY 1987

TABLE 1

Item Being Compared	Unbelted	Belted	Ratio unbelted/belted
Costs	$620	$280	2.2
Admissions	18%	5%	3.6
Fractures	22%	8%	2.8
Lacerations	30%	3%	10.0
Minor Head Injury	25%	11%	2.3

could be enhanced by generating local statistics. A pilot study in Iowa was conducted using all MVA victims presenting for emergency care during the months of April to December of 1986 to compare injuries and costs of belted vs unbelted occupants. The study was conducted as follows:

1) Patients coming into the emergency department from motor vehicle accidents were asked the following questions about the accident:

- Approximate speed _____
- Vehicle size: compact / midsize / full size
- Seat belt yes /no
- Shoulder harness yes /no
- If child, infant seat yes /no
- Location in vehicle: driver / front, other / back
- Disposition: Treated & released / admitted / transferred / DOA / died in ER
- Injuries: (listed)

2) Outpatient and inpatient medical fees incurred at the hospital were compiled. Not included were expenses for ambulance, physician or rehabilitation and follow-up visits.

The unbelted suffered about 2 to 10 times more serious injuries, 3.6 times the need for hospital admission and over twice the hospital related costs compared to the belted (Table 1).

The belted had no admission or head injury at low speeds. The belt was equally effective in reducing fracture and laceration at high and low speeds. The unbelted had a nearly equal occurrence of fracture and laceration at low and high speeds (Table 2). The effectiveness of seat belts in reducing costs and

Survey 152 MVA victims are:

SAFETY RESTRAINT COMPLIANCE:			
Patients wearing belts	= 38	38/152	= 25%
Patients unbelted	= 114	114/152	= 75%
COSTS			
Average hospital cost			
Belted	= $280		
Unbelted	= $620		
ADMISSIONS			
Belted	= 2	2/38	= 5%
Unbelted	= 20	20/114	= 18%
Total	= 22		
FRACTURES			
Belted	= 3	3/38	= 8%
Unbelted	= 25	25/114	= 22%
Total	= 28		
LACERATIONS			
Belted	= 1	1/38	= 3%
Unbelted	= 34	34/114	= 30%
Total	= 35		
MINOR HEAD INJURY			
Belted	= 4	4/38	= 11%
Unbelted	= 29	29/114	= 35%
Total	= 33		

TABLE 2

KEOKUK STUDY OF
INJURY AT SPEED LEVELS

	LOW SPEED 5 to 30 mph			*HIGH SPEED over 30 mph*		
	Unbelted	*Belted*	*Ratio unbelted/belted*	*Unbelted*	*Belted*	*Ratio unbelted/belted*
Admission	13%	0%	> ~	27%	13%	2.08
Fracture	31%	6%	5.17	31%	7%	4.43
Laceration	20%	6%	3.33	27%	7%	3.36
Head Injury	23%	0%	> ~	42%	13%	3.23

injury associated with MVAs at both low and high speeds is clearly demonstrated in this study.

Facts About Safety Belts

- At 30 mph, the car stops in 0.1 second but unbelted passengers keep moving forward with a force comparable to falling from a 3-story building.
- Chances of fatal injury are 25 times greater if passengers are thrown from the vehicle.
- Fire or submersion occurs in less than 0.5% of all injury-producing collisions. Belts help passengers remain conscious, making escape more likely.
- One of 4 serious injuries is caused when unbelted passengers are thrown into each other.

Iowa's Safety Belt Law

The Iowa Safety Belt Law, Code of Iowa, Section 321.445, effective July 1, 1986 requires the driver and front seat occupants of motor vehicles manufactured from 1966 on to wear properly fastened safety belts. Exemptions to the law include:

- Drivers or passengers who frequently get in and out of vehicles to perform jobs, as long as they do not drive over 25 mph.
- Bus passengers.
- Front seat passengers of emergency vehicles being transported in an emergency. (The driver is not exempt.)
- Rural letter carriers driving between first and last delivery points.
- A person with a medical exemption form signed by a physician.

Guidelines For Medical Exemption

The Iowa belt law provides no specific grounds for a medical exemption. The physician must evaluate each case individually, weighing the benefits of using a belt and the increased risk of injury or death.

Medical reasons that frequently present to the physician for evaluation for a medical exemption include:

- certain musculoskeletal conditions and deformities
- pregnancy
- scars
- pacemakers
- ileostomies or colostomies
- conditions of the breast
- unusual body size or shape
- psychological conditions

The physician must often discriminate between a valid medical reason and the patients' lack of knowledge of the restraint's purpose and correct adjustment.

The Iowa Department of Transportation recommends the following:

1) A request for medical exemption must be carefully reviewed and the patient given all possible encouragement to adapt to the restraint system (i.e., adjusting the position and the height of the car seat, and adjusting the belt) before making a decision.

2) The physician should keep a record of the medical reason for an exemption, including why it was granted, the date granted, and the expiration date.

3) For temporary conditions, a medical exemption should be granted for periods of no

(Please turn to page 236)

more than 6 months and renewed as necessary.

4) A patient who is primarily a passenger and is unable or refuses to use a safety belt should be advised to ride in the back seat.

The certification of exemption must be completed on a form provided by the Iowa Department of Transportation. It cannot exceed 12 months, but may be renewed.

Child Safety Restraints

All 50 states and the District of Columbia have child safety seat use laws. Iowa's Child Safety Seat Law became effective January 1, 1985. Children under age 3 are required to be protected in a car safety seat. Children ages 3-6 must be secured in an approved safety seat or safety belt. Children are safer riding in the back seat. Child safety restraint misuse happens when:

1) The safety belt is routed incorrectly through the seat.

2) The infant seat faces forward instead of rearward.

3) The harness is not buckled.

4) The tether is not attached to the car.

All safety seats manufactured after January 1, 1986 must meet standards for crash worthiness.

The Scope of Our Challenge

For many years physicians have seen the wastage of human life from MVAs and have recognized mortality and morbidity incurred by unrestrained drivers and passengers are greater than those properly restrained. Unfortunately, a majority of the public remains uninformed and needs to become the focus of our challenge today.

The issue of enforceability is largely a matter of behavioral health. How do we get people to do something to prevent bodily harm? Through public awareness — information and educational programs for all ages and health care practitioners support of safety belt use.

In our home and community we can encourage the use of safety belts by always wearing them, asking family and friends to buckle up and supporting local public awareness campaigns.

Among our colleagues and patients, we can support activities that prevent motor vehicle trauma (occupant restraints, alcohol countermeasures, helmet use). We need to provide our patients with facts on motor vehicle trauma and its consequences in the belted vs the unbelted by:

1) Making educational materials available, discussing child safety restraint usage with parents early during well baby care and as they present in early adolescence.

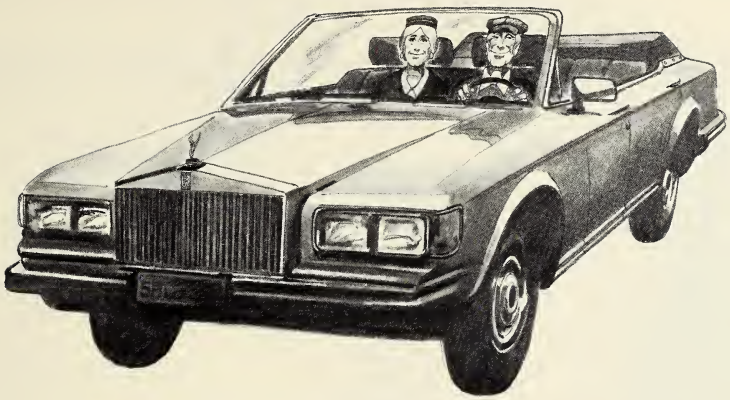
2) Asking victims of MVAs if they were belted. Positively reinforce those who comply and encourage an understanding of health safety in those who weren't belted. Informational brochures given to victims at this time will likely be read and remembered.

Conclusion

Trauma prevention through safety restraints is a health concern which requires the understanding, support and active efforts of the medical community. We have many opportunities to impress upon our patients safety belts reduce the severity of injuries and costs from MVAs. Road trauma is a disease of epidemic proportion requiring physicians to practice the skills of preventive and behavioral medicine.

Resource materials available from: Iowa Department of Transportation, 1/800-532-1121 or 515/281-5012 or Iowa Traffic Safety Now: 1/800-532-1446 or 515/244-2240 (Speakers Bureau Available).

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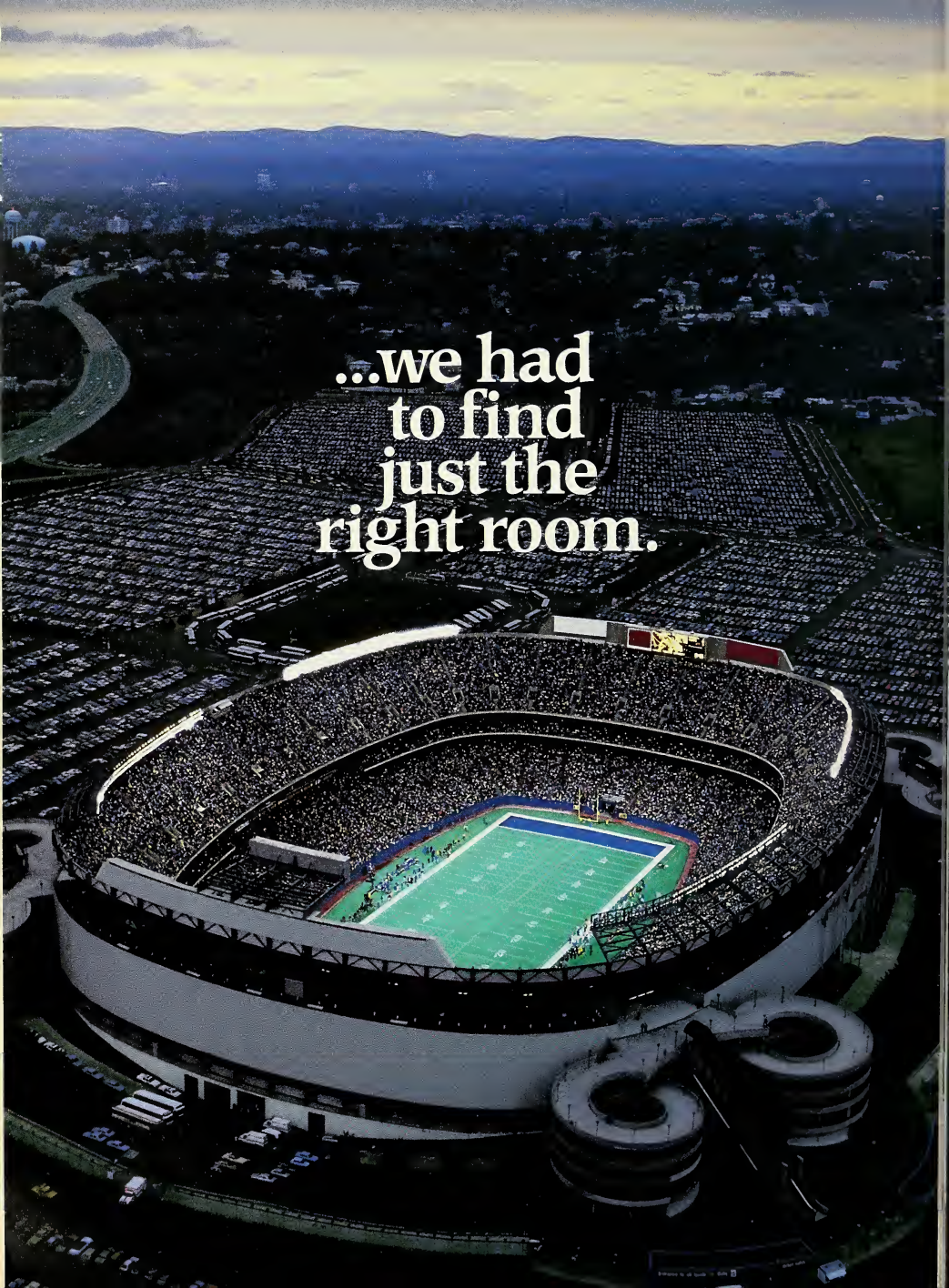
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Like conventional INDERAL Tablets, INDERAL LA should not be used in the presence of congestive heart failure, sinus bradycardia, cardiogenic shock, heart block greater than first degree, and bronchial asthma.

*After a 30-day trial with INDERAL LA, physicians reported that 90% of the patients would remain on INDERAL LA.

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BRIEF SUMMARY *(FOR FULL PRESCRIBING INFORMATION, SEE PACKAGE CIRCULAR.)*

INDERAL® LA brand of propranolol hydrochloride **(Long Acting Capsules)**

DESCRIPTION. INDERAL LA is formulated to provide a sustained release of propranolol hydrochloride. INDERAL LA is available as 60 mg, 80 mg, 120 mg, and 160 mg capsules.

CLINICAL PHARMACOLOGY. INDERAL is a nonselective, beta-adrenergic receptor-blocking agent possessing no other autonomic nervous system activity. It specifically competes with beta-adrenergic receptor-stimulating agents for available receptor sites. When access to beta-receptor sites is blocked by INDERAL, the chronotropic, inotropic, and vasodilator responses to beta-adrenergic stimulation are decreased proportionately.

INDERAL LA Capsules (60, 80, 120, and 160 mg) release propranolol HCl at a controlled and predictable rate. Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours. When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL Tablets. The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol, resulting from the slower rate of absorption of propranolol. Over a twenty-four (24) hour period, blood levels are fairly constant for about twelve (12) hours then decline exponentially.

INDERAL LA should not be considered a simple mg-for-mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose. When changing to INDERAL LA from conventional propranolol, a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval. In most clinical settings, however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect, INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate, systolic pressure and rate pressure product. INDERAL LA can provide effective beta blockade for a 24-hour period.

INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension; it may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic. INDERAL LA is not indicated in the management of hypertensive emergencies.

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris.

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache. The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use.

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis, especially for treatment of exertional or other stress-induced angina, palpitations, and syncope. INDERAL LA also improves exercise performance. The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation. Clinical improvement may be temporary.

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock, 2) sinus bradycardia and greater than first-degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL.

WARNINGS. CARDIAC FAILURE. Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely; or INDERAL should be discontinued (gradually, if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following *abrupt* discontinuance of INDERAL therapy. Therefore, when discontinuance of INDERAL is planned, the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

MAJOR SURGERY: The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, eg, dobutamine or isoproterenol. However, such patients may be subject to protracted severe hypotension. Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers.

DIABETES AND HYPOGLYCEMIA: Beta blockers should be used with caution in diabetic patients if a beta-blocking agent is required. Beta blockers may mask tachycardia occurring with hypoglycemia, but other manifestations such as dizziness and sweating may not be significantly affected. Following insulin-induced hypoglycemia, propranolol may cause a delay in the recovery of blood glucose to normal levels.

THYROTOXICOSIS: Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol may change thyroid function tests, increasing T_4 and reverse T_3, and decreasing T_3.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case, this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS. GENERAL: Propranolol should be used with caution in patients with impaired hepatic or renal function. INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies.

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure. Patients should be told that INDERAL may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

CLINICAL LABORATORY TESTS. Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS: Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension.

Caution should be exercised when patients receiving a beta blocker are administered a calcium-channel-blocking drug, especially intravenous verapamil, for both agents may depress myocardial contractility or atrioventricular conduction. On rare occasions, the concomitant intravenous use of a beta blocker and verapamil has resulted in serious adverse reactions, especially in patients with severe cardiomyopathy, congestive heart failure or recent myocardial infarction.

Aluminum hydroxide gel greatly reduces intestinal absorption of propranolol.

Ethanol slows the rate of absorption of propranolol.

Phenytoin, phenobarbitone, and *rifampin* accelerate propranolol clearance.

Chlorpromazine, when used concomitantly with propranolol, results in increased plasma levels of both drugs.

Antipyrine and *lidocaine* have reduced clearance when used concomitantly with propranolol.

Thyroxine may result in a lower than expected T_3 concentration when used concomitantly with propranolol.

Cimetidine decreases the hepatic metabolism of propranolol, delaying elimination and increasing blood levels.

Theophylline clearance is reduced when used concomitantly with propranolol.

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY. Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

PREGNANCY: Pregnancy Category C. INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose.

There are no adequate and well-controlled studies in pregnant women. INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

NURSING MOTHERS. INDERAL is excreted in human milk. Caution should be exercised when INDERAL (propranolol HCl) is administered to a nursing woman.

PEDIATRIC USE. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

Cardiovascular: Bradycardia; congestive heart failure; intensification of AV block; hypotension; paresthesia of hands; thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type.

Central Nervous System: Light-headedness; mental depression manifested by insomnia, lassitude, weakness, fatigue; reversible mental depression progressing to catatonia; visual disturbances; hallucinations; vivid dreams; an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics. For immediate formulations, fatigue, lethargy, and vivid dreams appear dose related.

Gastrointestinal: Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic: Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory: Bronchospasm.

Hematologic: Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Auto-Immune: In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous: Alopecia. LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.



DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily. If patients are switched from INDERAL Tablets to INDERAL LA Capsules, care should be taken to assure that the desired therapeutic effect is maintained. INDERAL LA should not be considered a simple mg-for-mg substitute for INDERAL. INDERAL LA has different kinetics and produces lower blood levels. Retitration may be necessary, especially to maintain effectiveness at the end of the 24-hour dosing interval.

HYPERTENSION—*Dosage must be individualized.* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic. The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved. The usual maintenance dosage is 120 to 160 mg once daily. In some instances a dosage of 640 mg may be required. The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks.

ANGINA PECTORIS—*Dosage must be individualized.* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three- to seven-day intervals until optimal response is obtained. Although individual patients may respond at any dosage level, the average optimal dosage appears to be 160 mg once daily in angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established.

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS).

MIGRAINE—*Dosage must be individualized.* The initial oral dose is 80 mg INDERAL LA once daily. The usual effective dose range is 160-240 mg once daily. The dosage may be increased gradually to achieve optimal migraine prophylaxis. If a satisfactory response is not obtained within four to six weeks after reaching the maximal dose, INDERAL LA therapy should be discontinued. It may be advisable to withdraw the drug gradually over a period of several weeks.

HYPERTROPHIC SUBAORTIC STENOSIS—80-160 mg INDERAL LA once daily.

PEDIATRIC DOSAGE—At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use.

*The appearance of these capsules is a registered trademark of Ayerst Laboratories.

REFERENCES:

1. INDERAL LA National Compliance Evaluation Program. Data on file, Ayerst Laboratories.
2. Ravid M, Lang R, Jutrin I: The relative antihypertensive potency of propranolol, oxprenolol, atenolol, and metoprolol given once daily. *Arch Intern Med* 1985; 145:1321-1323.

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Marion E. Alberts, M.D.

The Editor Comments



Patient-Doctor Relationships

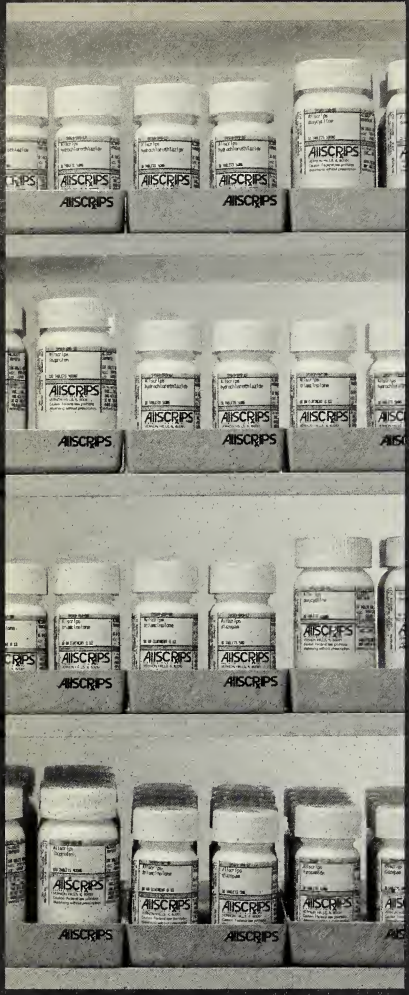
A NUMBER OF INSIDIOUS WEDGES have been driven between physicians and patients during the past decade or two. The doctor-patient relationship of yore is undermined by factors which are considered evidence of progress. Patients hear more and more of the complex technologic advances in diagnosis and treatment. However, a little knowledge often leads them to conclusions which are not valid or warranted. The choice of the use of complex technological modalities rests in the physician's abilities to use them wisely. Rash use of complex tests and procedures can cause confusion and misunderstanding for the physician and the patient.

The impersonal approach — the technologic approach — to diagnosis and treatment leads to misunderstanding in many instances. A patient resents being an object of intimacy by a machine — cumbersome machines that are complex, cold and do not answer questions the patient might want to ask.

What happens when the patient becomes disillusioned by the impersonal approach? The patient seeks recourse, another wedge that has become very significant. Recourse is measured in money. Misunderstanding, "inadequate" information, the lack of the personal consideration breeds contempt. Contempt leads to action. The physician becomes a "risk" as insurance parlance would have it. That brings us to "risk management."

This issue of IOWA MEDICINE looks at this very important facet of medical practice. Several discussions are presented on what the problems are and ways to deal with them. We must relate on a person-to-person level with our patients rather than treat them only as objects of a series of technologic "print-outs." People have attitudes which are difficult to perceive at times . . . patients want the "old doc" without the frills, but still want the biggest and most expensive procedures in a plush setting. Yet, is that plush setting truly the desire of the patient or is it a reflection of an image the physician is trying to project? Our hospitals and many clinics have costly frills which can only be paid for by patients. Here can be another source of resentment.

What is it all about, then? It is evident much has been blown out of proportion. Wouldn't it be nice to be just a physician again, helping the sick to the best of our abilities, using the tools of our profession in a judicious manner and really developing a doctor-patient relationship that is not wedged apart by avarice, distrust and third-party pay interests. No, we cannot go back to the 30's and 40's, but the doctor-patient relationship could be refurbished if modern technology were used as an aid rather than the master of our professional skills. The duty of the doctor is to conduct himself in a way that furthers the best interest of the patient. The responsible physician must be flexible, considerate and discreet. The dignity of the patient must be enhanced so that, with the physician's help, he may cope with doubt, fear and uncertainty. Such is our mission. — M.E.A.



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Richard M. Caplan, M.D.

CME Notebook



Airs, Waters, and Places

THIS BRAID has three strands.

I begin with Hippocrates, always a useful starting point for a medical discussion. In the discourse entitled "Airs, Waters, and Places" he contends that what we might call the physical and personalilty characteristics of individuals, and also the diseases that afflict them, relate to their habitats — such features as temperature, rainfall, winds, terrain and changeability of climate. This famous book within the Hippocratic corpus asserts, for example, that the inhabitants of Europe are "more courageous than those of Asia; for a climate which is always the same induces indolence, but a changeable climate [produces] laborious exertions both of body and mind; and from rest and indolence cowardice is engendered, and from laborious exertions and pains, courage." A case could be made, I suggest, that the desirability of avoiding indolence, surely a goal worthy of pursuit, calls upon us to seek changes of climate. And if while at it, we indulge in some laborious exertions as well, we may gain the added benefit of courage. That brings me to strand two.

In a recent discussion with a group of physician colleagues, the question arose about the "legitimacy" of scheduling a CME session at some distant locale that is pleasant. That going somewhere pleasant must be inappropriate, is always asserted in a voice of strong disapproval, and seems born of one or more of the following faulty considerations: (1) Education is and ought to be intrinsically punitive; (2) If any competing attraction is present within 50 miles of the educational event, at least 90% of the doctors will forsake the education for the competition; (3) A mix of education and relaxation is not logically conceivable; and (4) No matter what the objectives and content of the education and even if not in violation of IRS rules, such an event violates the rules that the IRS *ought* to impose on all of us. In spite of what government leaders call an "open and candid discussion of the differences," none of my colleagues changed his views. Pity, but it brings me to strand three.

At a recent meeting in a pleasant, distant spot, a doctor's wife remarked that her husband always "got a lot out of a meeting like this, where he's really away from the usual pressures and interruptions. He talks with me about some of the new ideas he's picked up, and at least for a while after he gets home, he does some additional reading on the same topic." I've heard that sort of remark many times, although indeed I haven't counted them, nor have I a denominator to compute the crucial ratio. But I'm well impressed, along with Hippocrates, that a change of locale and an abundance of "fresh air" (literally or figuratively) brings physical and psychological benefit to the individual. If that is so, I believe it must benefit the quality of one's work as well.

My braid is ready for its ribbon.

Dr. Caplan is Associate Dean for Continuing Medical Education at The University of Iowa College of Medicine.

Drug Therapy Review

REYNOLD SPECTOR, M.D., Editor

Adriamycin: Review of Clinical Pharmacology and Toxicity of an Effective Anticancer Drug

THIRTEEN YEARS AGO, the Food and Drug Administration approved the use of Adriamycin (doxorubicin hydrochloride, Adria) for therapy of acute lymphoblastic leukemia, acute myeloblastic leukemia, bone and soft-tissue sarcomas, neuroblastoma, and carcinomas of the breast, lung, ovary, stomach, and thyroid. Today, the role of Adriamycin in curative and palliative chemotherapy programs for these and other advanced neoplasms remains established. Adriamycin is also proposed as a component of adjuvant chemotherapy schemes for sarcomas and breast and ovarian carcinomas, for which clinical trials are currently in progress. Despite its notable and substantial position in the oncologist's armamentarium, Adriamycin therapy is plagued at times by profound toxicities, and our understanding of the mechanisms for and antidotes to these side effects is still evolving. We will review the pharmacology and clinical activities of Adriamycin, and address the major problem of cardiac toxicity, which continues to confound otherwise successful Adriamycin treatment.

Adriamycin consists of a brilliant orange-red tetracyclic chromophore linked via a glycosidic bond to the aminosugar, daunosamine (Figure 1). The commercial preparation is derived from *Streptomyces peucetius* var. *caesius*, although there are 6 other microorganisms now known that produce a structurally identical antibiotic. Organic syntheses of the molecule have been accomplished. Identification and quantification of Adriamycin in extracts of biological samples is aided by its characteristic fluorescence at 585 nm. It distributes quickly into cell nuclei, and orange fluorescence can be demonstrated by ultraviolet microscopy in nuclei from excised tissues after Adriamycin injection.

The precise mechanisms by which Adriamycin causes cell death remain uncertain. The commonly accepted notion is that Adriamycin interacts with cellular DNA and RNA by intercalation between nucleotide bases.[1] From this position, DNA polymerase activity may be inhibited; toxic free radicals, which can directly damage DNA integrity, can be locally generated by activation of Adriamycin. However, Adriamycin has also been shown to have the ability to oxidize membrane and intracellular lipids (with loss of membrane functions), to denature intracellular and nuclear proteins, to interfere with mitochondrial energetics, and even to produce cell death by interactions with the external cell surface. Knowledge of which of these mechanisms is responsible for cytotoxicity would allow for better prediction of toxicities, elaboration of chemoprotectants or antidotes to Adriamycin, and the possibility of improving the selectivity of Adriamycin action against tumor cells, sparing normal tissues.

Pharmacokinetics

In patients with normal liver function, the terminal half-life of Adriamycin elimination is 16 to 18 hours, providing a rationale for intermittent bolus injection therapy. The apparent volume of distribution is large (200 L or greater), indicating extensive drug uptake by tissues, mainly liver, kidney, tumor cells, lung,

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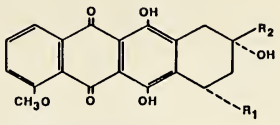
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and muscle. Several metabolites of Adriamycin have been identified (Figure 1). The predominant species, 13-OH-Adriamycin (adriamycinol), is the product of a soluble aldo-keto reductase and is equipotent to the parent drug against tumor cells. 7-Deoxyaglycones result from NADPH-dependent microsomal metabolism of Adriamycin, via a free radical intermediate. Plasma concentrations of these latter compounds vary from patient to patient, and it has been suggested by several investigators that higher plasma aglycone concentrations are associated with increased incidence of toxicities, especially cardiotoxicity. Urinary excretion of Adriamycin and metabolites accounts for 10% or less of injected doses. Negligible concentrations are found in CSF. Adriamycin and metabolites readily enter malignant effusions at concentrations approaching those in plasma.

Structures of Adriamycin and Its Major Metabolites



COMPOUND	R_1	R_2
ADRIAMYCIN	DAUNOSAMINE	O ‖ C-CH_2OH
ADRIAMYCINOL	DAUNOSAMINE	OH \| CH-CH_2OH
7-DEOXYADRIAMYCIN AGLYCONE	H	O ‖ C-CH_2OH
7-DEOXYADRIAMYCINOL AGLYCONE	H	OH \| CH-CH_2OH

Figure 1

Adverse Effects

The toxicities of Adriamycin are qualitatively similar to those of alkylating agents and ionizing radiation. They are dose related and generally reversible.[1] Nausea and vomiting occur in greater than 50% of patients, and capital alopecia is universal. Somnolence during the first 24 hours after injection and lethargy for several days are reported, often in elderly patients. Although Adriamycin is not a chemical vesicant, extravasation during injection can produce severe, painful, progressive ulceration of skin and subcutaneous tissues. Dose-limiting toxicities are myelosuppression, mucositis, and congestive cardiomyopathy.

Extravasation necrosis from Adriamycin is refractory to medical therapy, and successful resolution of the process usually requires surgical intervention. This is due to the persistence of Adriamycin in skin and subcutaneous tissue, which do not metabolize the drug. It is suspected that inflammatory cells ingest tissue-bound drug, resulting in cell death or dysfunction and ineffective healing. Following suspected extravasation, the best indicator of the need for surgical debridement is pain in the injection site or surrounding tissues. If initial pain is severe, if local pain worsens in the first 2 weeks after extravasation, or if obviously necrotic tissue appears, then prompt plastic surgical attention is warranted. Local measures to thwart tissue necrosis after extravasation of Adriamycin have included application of cold compresses for 4 to 6 hours, infiltration of tissues with corticosteroids, sodium bicarbonate, or sodium thiosulfate, and painting affected skin with dimethyl sulfoxide. None of these methods has been shown in a controlled fashion to be superior to surgery, and assessment of the patient's symptoms remains the most reliable index to guide the clinician.

Both myelosuppression and mucositis are dose related, occurring about 7 to 14 days after bolus injection of Adriamycin, with recovery in 7 days.[2] Adriamycin effects are greater against leukocytes, especially neutrophils, than against platelets or erythrocytes. The mucosal lesions complicating Adriamycin therapy are aphthous ulcerations, usually of the inner labial and pharyngeal surfaces. While they are often small and mildly to moderately painful, ulceration may involve the entire oral cavity and upper aerodigestive mucosa, with bleeding, infection, and inability to tolerate oral feeding.

With early clinical trials of Adriamycin, it became apparent quickly that certain groups of patients were more likely to experience more severe acute toxicities. Excess numbers of deaths were encountered in patients who received multiple, sequential daily Adriamycin injections and in patients with biochemically evident impairment of hepatic excretory function. Understanding the human pharmacokinetics of Adriamycin has allowed clinicians to

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TABLE 1

TOXICITY OF ADRIAMYCIN IN PATIENTS WITH AND WITHOUT IMPAIRED LIVER FUNCTION

*Patient population (n)**	*Nadir WBC*	*Nadir Platelets*	*Mucositis*	*Drug-related Deaths*
Normal liver function (79)	2100/μl	157,000/μl	6 (7.6%)	3 (3.8%)
Abnormal liver function (8)	600/μl	33,000/μl	3 (38%)	3 (38%)
Abnormal liver function, with dose reduction (7)	3100/μl	147,000/μl	0 (0%)	0 (0%)

* (n) = Number of patients

avert some of the acute toxicities of the drug in high-risk patients. Its long elimination half-life suggested that daily administration could lead to accumulation of Adriamycin, with increased toxicity. Benjamin *et al* demonstrated that patients with abnormal liver function manifested prolonged, high plasma Adriamycin concentrations and an exaggerated incidence and severity of mucositis, myelosuppression, infection, and death (Table 1).[2]

Such colorful sobriquets for Adriamycin as "Red Death" and "cherry bomb" have given way with the recognition that dosage reduction could result in maintenance of therapeutic efficacy with acceptable toxicities in high-risk patients. The dosage reduction scheme suggested by Benjamin is still the most applicable (Table 2).

Clinical Trials

Most controlled clinical trials of Adriamycin efficacy and toxicity have been conducted in patients with breast cancer, and we will focus on this disease category in subse-

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quent discussions. In 1981, Carmo-Pereira and colleagues reported response and toxicity in metastatic breast cancer patients treated either with VAC (vincristine, Adriamycin, cyclophosphamide) or CMFP (cyclophosphamide, methotrexate, 5-fluorouracil, prednisone).[3] Twenty-five patients were randomly allocated to receive VAC, and 26 to receive CMFP. Sites of disease and prior therapy were comparable between the 2 groups. There were 14 responders to VAC (4 complete responses) and 17 responses to CMFP (5 complete). All patients eventually relapsed with a median of 12 months of response and were crossed over to the alternate therapy arm. There were about 20% responders to each crossover. Overall median survivals were 18 months for VAC and 22 months for CMFP. Toxicity was more severe with VAC — all patients had some leukopenia, compared to 14/26 on CMFP. It should be noted that cyclophosphamide was given orally in CMFP and intravenously in VAC. No thrombocytopenia was seen. Neurotoxicity occurred in 85% of VAC patients, related to vincristine. This trial, although suggesting equivalent responses but greater toxicity with the Adriamycin-containing arm, had sufficient dissimilarities between the 2 arms to preclude a definitive conclusion.

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TABLE 2

DOSAGE REDUCTION GUIDELINES FOR ADRIAMYCIN THERAPY

Bilirubin	*AST (SGOT)*	*Reduction in Dosage**
<1.2 mg/dl	<2× normal	0%
<1.2 mg/dl	>2× normal	25%
1.2-3.0 mg/dl	Any	50%
>3.0 mg/dl	Any	75%

* Based on nominal standard dosage of 60 mg/m²

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In the trial of Nemoto *et al*, patients were randomized to 1 of 4 arms: cyclophosphamide, 5-fluorouracil, prednisone (CFP), cyclophosphamide and Adriamycin with or without 5-fluorouracil (CAF, CA), and alternating CFP and CA.[4] The response rates were CFP — 18%, CAF — 25%, CA — 42%, and CFP-CA — 63%. The majority of responses were partial. All responding patients had progressive disease within 30 months, and there were no differences among the 4 groups in duration of response (median, 12 months) or in overall survival (median, 18 months). Toxicities of emesis and alopecia were more pronounced in the 3 Adriamycin-containing arms, but leukopenia was only slightly more severe. Intravenous cyclophosphamide was used in all 4 arms.

The experience of Cancer and Leukemia Group B (CALGB), of which The University of Iowa is a member, is contrary to the above reports and suggests a beneficial role for substituting Adriamycin for methotrexate in combination regimens. Tormey *et al* reviewed the CALGB experience and reported results of a trial comparing CMFVP (CFP plus methotrexate and vincristine) to CAFVP (CAF plus vincristine and prednisone).[5] More than 100 patients were accessioned to each arm. The overall response rates were 71% for CAFVP and 50% for CMFVP, with a few more complete responders to CAFVP. Median survival of CAFVP responders (29 months) was statistically significantly longer than CMFVP responders (18 months), and survival of the entire CAFVP population was better (19 months) than with CMFVP (13 months). Toxicities were equivalent between CAFVP and CMFVP, except that 4% of CAFVP patients experienced "mild" congestive heart failure. The superior response and survival results and the manageable toxicities of CAFVP led these authors to recommend substitution of Adriamycin for methotrexate in primary therapy of advanced breast cancers.

Cardiomyopathy

The development of Adriamycin cardiomyopathy is a dose-dependent phenomenon.

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Below a total cumulative dosage of 550 mg/m², the incidence of congestive heart failure is less than 10%, but rises rapidly as the cumulative dosage is increased.[6] For this reason, most clinicians adhere to a limit on total Adriamycin dosage of 500 to 550 mg/m². Individual patients may tolerate higher total dosages, but the risk is considerable, in that 30 to 50% death rates are reported in patients with clinically manifested heart failure.[6]

The onset of symptoms suggesting Adriamycin cardiomyopathy generally occurs about 1 month after the last administered dose, but may appear within hours or as long as 8 months after an Adriamycin dose. The frequently observed clinical signs are those typical for congestive heart failure, including tachycardia, tachypnea, distension of neck veins, gallop rhythms, pedal edema, hepatomegaly, cardiomegaly, and pleural effusion.

The pathological changes in heart muscle caused by Adriamycin have been extensively investigated in animals and man. Within minutes after intravenous administration, fragmentation and segregation of nucleoli, followed rapidly by clumping of nuclear chromatin, are observed. Several hours later, swelling of the sarcoplasmic reticulum, T-tubules, and mitochondria occur, with vacuolization appearing. Electrocardiographic changes noted during this early phase, which are only rarely of clinical significance, include nonspecific ST-T wave changes, prolongation of the QT interval, and emergence of atrial and ventricular dysrhythmias (10-25% of patients). An uncommon occurrence is a self-limited pericarditis.[6]

The precise mechanism by which these changes are brought about remains uncertain. The toxic effects of Adriamycin mentioned previously — DNA/RNA intercalation, free radical and superoxide production, lipid peroxidation, mitochondrial damage — may all potentially contribute to the cardiac lesion. It is of note that cardiac myocytes contain lesser quantities of superoxide dismutase and glutathione than other tissues, which may render

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them more susceptible to Adriamycin.[7] Efforts aimed at preventing cardiac injury by supplying antidotes have had limited success. N-acetylcysteine or placebo was administered to 20 patients prior to Adriamycin therapy, and the acute cardiac changes were monitored over 24 hours by endomyocardial biopsy analysis.[7] There were no differences in morphological abnormalities between the 2 groups, and N-acetylcysteine was judged to be ineffective in reversing the cardiomyopathic lesion of Adriamycin. Carnitine, a naturally occurring compound involved in mitochondrial oxidative reactions, was shown to prolong survival of monkeys when given with Adriamycin.[8] However, other animal testing suggested that the mechanism of prolongation of survival was not by cardiac protection. Digitalis, propranolol, and alpha-tocopherol have been tried as protectants, but with negative or inconclusive results.[6]

Another method to reduce Adriamycin cardiotoxicity, by altering the schedule of administration, was suggested by analysis of the dosage-toxicity relation for Adriamycin reported by Von Hoff *et al.*[9] They found a lesser incidence of heart failure for every dosage level when the drug was given as divided weekly bolus injections, and that the 10% incidence of CHF was reached only at 750 to 800 mg/m^2. This prompted Legha, Benjamin *et al* to study the pharmacology and cardiac toxicity of Adriamycin by continuous intravenous infusions of 24, 48, and 96 hours' duration.[10] As one might predict, the peak plasma Adriamycin concentration fell with increasing duration of infusion. With the 96-hour infusion, the peak plasma concentration was less than 10% of that of a bolus injection. There was significant improvement in the average endomyocardial biopsy score with the prolonged infusion schedule, with no reported compromise of efficacy and no clinical congestive heart failure. The same authors examined the efficacy and toxicity of single-agent Adriamycin given by continuous intravenous infusion in patients with advanced breast cancer.[11] They studied 27 patients who had failed CMF or CMFVP, and received Adriamycin, 60 mg/m^2, as a 24- to 96-hour infusion. Thirteen patients responded (1 complete), although all patients had progressive tumor by 21 months after initiation of therapy. The incidence of significant nausea and vomiting was less than expected (15%), and 4/27 patients had stomatitis. Myelosuppression, time to nadir blood counts, and alopecia were all similar to that observed after intermittent, bolus injection, Adriamycin therapy. Cardiac toxicity was not encountered, although this study did not include sufficient numbers of patients with cumulative Adriamycin dosage greater than 600 mg/m^2 (7/27 patients) to allow a definite conclusion. What is clearly needed is a randomized trial comparing bolus injection to 96-hour continuous infusion in a large patient population receiving higher dosages of Adriamycin, with evaluations of responses, acute toxicities, cardiac toxicities, costs, and drug- and disease-related death rates.

Because of the great benefits of Adriamycin in treating malignant disease, it may be justified to exceed the empiric dosage limitation of 550 mg/m^2 in selected patients. Palmeri *et al* examined resting and exercise radionuclide angiography in patients receiving up to 600 mg/m^2 of Adriamycin.[12] They noted that the ejection fraction (EF) performed at the midpoint of therapy (338 mg/m^2) and age were strongly correlated with the final EF value, and the midpoint EF could be used to screen high-risk patients for hazard of continuing Adriamycin. Piver and colleagues found that EF could be followed in patients who required more than 550 mg/m^2, with continued use of Adriamycin possible as long as the EF remained normal.[13] They observed that some initially low EF values could rebound to normal by withholding Adriamycin, with safe resumption of therapy at that point. However, we urge caution in treating any patient beyond 550 mg/m^2, because of the potential for late occurrence of clinical congestive heart failure, even after cessation of Adriamycin.

Conclusions

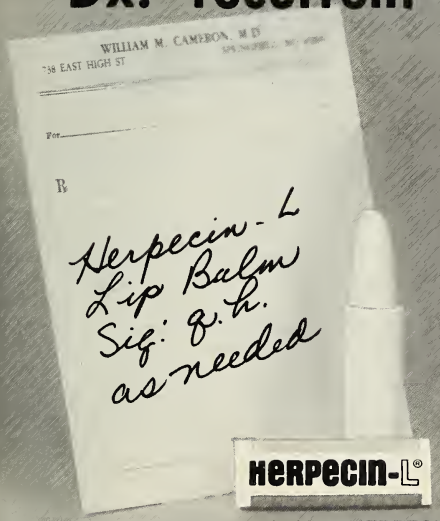
In this brief review, we have considered the biochemistry, pharmacology and pharmacokinetics, clinical efficacy, and approach to the toxicities of Adriamycin. Despite the long and extensive clinical experience with the drug, more basic information about its human pharmacology is needed. A better understanding of how Adriamycin produces cytotoxicity is essential for identification of potential antidotes to its deleterious effects on normal cells. Improvement of the selectivity of Adriamycin

for neoplastic cells may come from biochemical modulation of antineoplastic action, or from application of a rescue therapy. These should be the goals of new clinical pharmacology investigations on this versatile antitumor antibiotic. — CHARLES E. RIGGS, JR., M.D., *Assistant Professor of Internal Medicine* and STEWART A. SHARP, M.D., *Associate in Department of Internal Medicine.*

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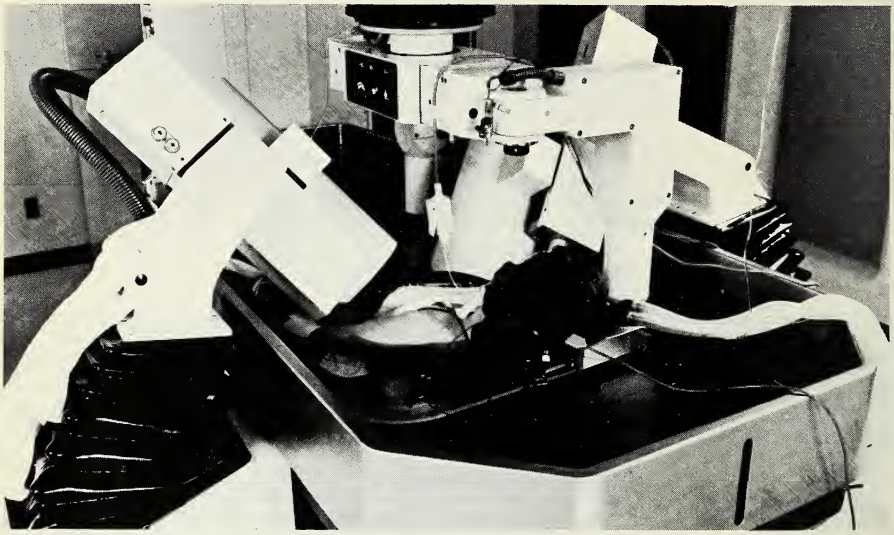
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Status of Family Life Education in Iowa

In the fall of 1986, a family life education survey of public and private school districts in Iowa was conducted by the Bureau of Family/Adolescent Health of the Iowa Department of Public Health. The project was supported by Title X priority funds of the U.S. Public Health Service.

The purpose of the survey was to assess the status of family life education and community attitudes in Iowa schools and to compare with previous studies. The survey results and the comparison will be helpful to schools and family planning agencies interested in the level of family life education for Iowa adolescents.

Background

In Iowa, each school district (public or private) is responsible for developing its own education curriculum in accordance with the Code of Iowa and the Iowa State Department of Education. Curriculum materials, teacher training and/or guidance in developing local curriculum are available from the State Department of Education or the Department's Area Education Agencies (AEA's). Actual curriculum content and the grade level at which classes are taught are determined by local school boards.

In October, 1978, a questionnaire sent to 682 schools indicated only 52% of responding schools were aware of family planning services in their communities. This early survey reflected the need to increase awareness of the availability of family planning services throughout Iowa.

In the spring of 1981, the Iowa Department of Public Health conducted a survey of the 440 Iowa public school districts to determine the availability of family life education classes. The effort was supported by Title X Special Initiative funds. The survey response rate was 92%. The survey identified 10 topic areas (related to family planning) and asked what classes currently addressed those areas. Districts were also to compare current offerings with what was available in the 1974-75 school year. Questions were asked about community support for classes on family planning and sex-related topics, whether the school district sponsored classes or activities which help parents teach their children family planning information, the approximate number of teen pregnancies for the previous year and whether these decreased or increased over the 1974-75 school year.

Response Rate for 1986 Survey

In the fall of 1986, the Department conducted a similar survey of the 440 public school districts. The survey included 89 private schools. There were additional questions on auxiliary services for adolescent parents and school based clinics. The overall response rate was 79%. Public school district response was 86%; private school response was 44%.

Class Offerings

Generally, the number of public schools offering family life classes had increased when compared with 1974-75. Topics most consistently addressed at all grade levels over the past 10 years are substance abuse, physiology/physical development and sexuality awareness. A greater number of public school districts addressed these topics in the last 4 years of school with most offerings in the 12th grade. Private schools tended to address the topics at the lower grade levels. In the most recent survey, public school districts reported 112

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classes were provided to address the 10 topic areas. Private schools appeared to have more classes addressing substance abuse and sexuality when compared with the other topics.

Teen Pregnancies

Districts estimated there were 1,230 teen pregnancies in 1979-80, close to the 1974-75 estimate. In the 1986 survey, districts estimated there were 1,137 pregnancies — 61% said the number hadn't changed from the previous year. It should be noted there were 1,248 recorded births to adolescents aged 17 and under in 1984; 1985 recorded only one additional birth for this age specific population. However, the total number of pregnancies per live births for these years are unknown. Iowa does not require abortion reporting.

Community Support

There was a major change since the 1981 survey in the school districts' perception of community support for family life education. In 1981, it was reported to be 58% as supportive and highly supportive; in 1986 this figure climbed to 79%.

Parental Involvement

The percent of school districts with family planning related information classes for parents was 15% in 1981 and 12% in 1986. The Department of Public Health now funds the Iowa March of Dimes and Iowa PTA statewide parent seminar project. These seminars are designed to increase parents' knowledge of sexuality and communication techniques so they may better teach family values to their children. During the grant year, approximately 1,000 parents participate in the seminars.

School Based Health Clinics

The 1986 survey asked school districts about their interest in school based clinics. Thirty percent said they were interested in a school based clinic which could provide services for illness, injury, sports and employment exams, immunizations, and on-site care, consultation and referral for other adolescent health needs.

Auxiliary Services

In the 1986 survey, only 12% said they had day care, specialized parent class, support group or other auxiliary services for adolescent parents. It should be noted respondents varied greatly in enrollment from 17% with fewer than 500 students to 48% with over 2,000 students.

Summary and Recommendations

In summary, the status of family life education classes in Iowa schools has improved. However, given the number of classes reflected in the 1986 survey, the approach remains rather fragmented. Many districts offer no classes. The number of teen pregnancies, as perceived by the school districts, has increased when compared with the 1979-80 school year. Actual numbers of live births have shown a decrease. It should be noted the adolescent population has decreased as well.

The survey data and comparison lead to the following recommendations.

1. Provide a more consistent, calculated approach to addressing the 10 family planning related topics with a statewide comprehensive health education curriculum.

2. Increase the availability of family planning agency staff to serve as resources to schools via special funding for community education.

3. Make funds available for interested schools to develop and establish school-based health clinics.

4. Expand the opportunity for parents to be involved in teaching their children family planning information.

Iowa is considered a leader in education. Academic achievement is important, but must be weighted with the life coping skills of the individual. Too many teens are having their full potential decreased by premature parenthood. Teenage parenthood means the loss of the adolescents' full potential, dependency on the State and an uncertain future for their children.

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Brief Summary. Consult the package literature for prescribing information.

Indications and Usage: Keflet™ Tablets (cephalexin, Dista) are indicated for the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

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Otitis media due to *S pneumoniae, Haemophilus influenzae,* staphylococci, streptococci, and *Neissera catarrhalis*

Skin and skin structure infections caused by staphylococci and/or streptococci

Bone infections caused by staphylococci and/or *Proteus mirabilis*

Genitourinary tract infections, including acute prostatitis, caused by *Escherichia coli, P mirabilis,* and *Klebsiella* sp.

Note—Culture and susceptibility tests should be initiated prior to and during therapy. Renal function studies should be performed when indicated.

Contraindication: Keflet is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings: BEFORE CEPHALEXIN THERAPY IS INSTITUTED, CAREFUL INQUIRY SHOULD BE MADE CONCERNING PREVIOUS HYPERSENSITIVITY REACTIONS TO CEPHALOSPORINS AND PENICILLIN. CEPHALOSPORIN C DERIVATIVES SHOULD BE GIVEN CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS.

SERIOUS ACUTE HYPERSENSITIVITY REACTIONS MAY REQUIRE EPINEPHRINE AND OTHER EMERGENCY MEASURES.

There is some clinical and laboratory evidence of partial cross allergenicity of the penicillins and the cephalosporins. Patients have been reported to have had severe reactions (including anaphylaxis) to both drugs.

Any patient who has demonstrated some form of allergy, particularly to drugs, should receive antibiotics cautiously. No exception should be made with regard to Keflet.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics (including macrolides, semisynthetic penicillins, and cephalosporins); therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening.

Treatment with broad-spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis.

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, management should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte, and protein supplementation. When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic associated pseudomembranous colitis produced by *C difficile.* Other causes of colitis should be ruled out.

Usage in Pregnancy—Safety of this product for use during pregnancy has not been established.

Precautions: *General*—Patients should be followed carefully so that any side effects or unusual manifestations of drug idiosyncrasy may be detected. If an allergic reaction to Keflet occurs, the drug should be discontinued and the patient treated with the usual agents (eg, epinephrine or other pressor amines, antihistamines, or corticosteroids).

Prolonged use of Keflet may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug.

Keflet should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

Indicated surgical procedures should be performed in conjunction with antibiotic therapy.

As a result of administration of Keflet, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinitest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP; Lilly).

Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

Usage in Pregnancy—Pregnancy Category B—The daily oral administration of cephalexin to rats in doses of 250 or 500 mg/kg prior to and during pregnancy, or to rats and mice during the period of organogenesis only, had no adverse effect on fertility, fetal viability, fetal weight, or litter size. Note that the safety of cephalexin during pregnancy in humans has not been established.

Cephalexin showed no enhanced toxicity in weanling and newborn rats as compared with adult animals. Nevertheless, because the studies in humans cannot rule out the possibility of harm, Keflet should be used during pregnancy only if clearly needed.

Nursing Mothers—The excretion of cephalexin in the milk increased up to 4 hours after a 500-mg dose; the drug reached a maximum level of 4 μg/mL, then decreased gradually, and had disappeared 8 hours after administration. Caution should be exercised when Keflet is administered to a nursing woman.

Adverse Reactions: *Gastrointestinal*—Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment. Nausea and vomiting have been reported rarely. The most frequent side effect has been diarrhea. It was very rarely severe enough to warrant cessation of therapy. Dyspepsia and abdominal pain have also occurred. As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.

Hypersensitivity— Allergic reactions in the form of rash, urticaria, angioedema, and, rarely, erythema multiforme, Stevens-Johnson Syndrome, or toxic epidermal necrolysis have been observed. These reactions usually subsided upon discontinuation of the drug. Anaphylaxis has also been reported.

Other reactions have included genital and anal pruritus, genital moniliasis, vaginitis and vaginal discharge, dizziness, fatigue, and headache. Eosinophilia, neutropenia, thrombocytopenia, and slight elevations in SGOT and SGPT have been reported.

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March 1987 Morbidity Report

Disease	Mar. 1987 Total	1987 to Date	1986 to Date	Most Mar. Cases Reported From These Counties
Aids	4	8	5	NA
Amebiasis	7	10	11	Scattered
Brucellosis	0	2	0	Scattered
Chickenpox	1586	3703	3684	Scattered
Campylobacter	9	33	41	Scattered
Cytomegalovirus	1	5	8	Blackhawk
Eatons Agent Infection	6	23	3	Scattered
Encephalitis, viral	0	0	2	
Erythema Infectiosum	151	265	0	Scattered
Gastroenteritis (GIV)	2134	7130	8323	Scattered
Giardiasis	21	64	84	Scattered
Hepatitis, A	22	44	10	Scattered
Hepatitis, B	12	35	22	Scattered
Hepatitis, Non A-B	3	9	5	Black Hawk, Johnson, Linn
Hepatitis type unspecified	1	2	0	Calhoun
Herpes Simplex	90	261	320	Scattered
Herpes Zoster	1	1	0	Linn
Histoplasmosis	2	5	5	Mahaska, Webster
Infectious mononucleosis	22	77	97	Scattered
Influenza, lab confirmed	8	63	213	Scattered
Influenza-like illness (URI)	4885	16198	63417	Scattered
Legionellosis	0	5	4	
Malaria	0	0	1	
Meningitis				
aseptic	2	5	6	Tama, Woodbury
bacterial	7	18	23	Scattered
meningococcal	1	3	6	Woodbury
Mumps	72	111	5	Scattered
Pertussis	1	3	4	Linn
Rabies in animals	23	53	29	Scattered
Reye Syndrome	0	0	0	
Rheumatic Fever	0	0	1	
Rubella (German measles)	0	0	0	
Measles	0	0	0	
Salmonellosis	13	32	35	Scattered
Shigellosis	0	7	3	
Toxic Shock Syndrome	0	2	3	
Tuberculosis				
total ill	2	8	11	Polk, Story
bact. pos.	2	8	11	Polk, Story
Typhoid Fever	0	0	1	
Venereal diseases:				
Gonorrhea	201	755	853	Scattered
Chlamydia	267	849	558	Scattered
Syphilis	2	6	4	Polk, Woodbury

Other Non-Reportable Diseases: Listeria — 1, Polk; Ureaplasma Urealyticum — 1, Johnson.

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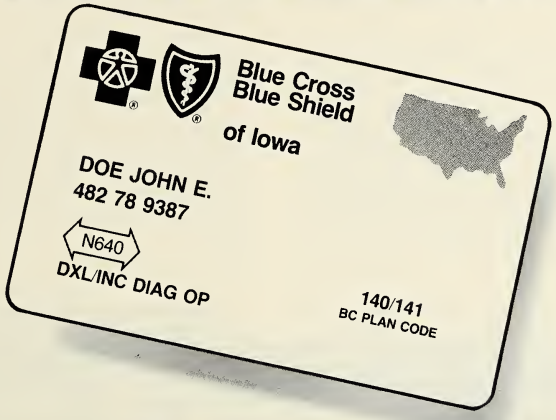
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In the Public Interest

A Message For Consumers

Iowa Insurance Commissioner William Hager says our current insurance climate is "best characterized as sound," but he is quick to point out that, in some areas, the atmosphere could use improvement.

Consumers, he states, are troubled by premium levels in property and casualty insurance. In addition, he is concerned about the effects of the medical liability crisis on the cost and availability of health care.

Tort Reform Proposals

Hager is concerned enough to support several key tort reform proposals, including a $200,000 cap on non-economic damages such as pain and suffering and a $1 million cap on awards in medical malpractice cases.

"I believe these reforms would have a significant impact on the liability climate," Hager asserts. "The cap in medical malpractice cases was set at $1 million because data show this limit significantly decreases insurance premiums."

Hager, an ex-officio member of the Iowa Legislature's Liability and Liability Insurance Commission, observes, "Insurance companies are messengers when it comes to setting premium levels. The message is there in an increasing number of claims and those claims are being settled for an increasing number of dollars."

Hager cites a recent study of Iowa Supreme Court data showing the average award for a liability case in Iowa jumped from $27,600 in 1980 to $50,000 in 1986.

"Obviously, this affects premiums paid by consumers," he adds.

The Supreme Court study does not reflect additional "loss adjustment expenses," expenses related to trying cases or settling claims.

"These costs account for a significant amount of premiums — approximately 30%," Hager comments.

Physician Owned Companies

Hager worked closely with the IMS-sponsored Iowa Physicians Mutual Insurance Trust during its recent transition to an independent company. He believes IPMIT and other physician-owned and operated companies have the potential to help ameliorate the liability crisis through careful scrutiny of applicants and risk management education efforts.

"The foundation for many malpractice law suits is malpractice," he states. "Physicians must be made responsible for their actions."

For this reason, Hager says physician-owned medical malpractice insurance companies are "a step in the right direction" for physicians and their patients.

"Because these companies are local, they can do a better job of scrutinizing the poor liability risks. The physicians themselves are much more aware of who the poor risks are."

Despite large increases in malpractice awards, Hager finds no fault with the jury system or Iowa jurors.

"Iowa has an extremely high literacy rate. Iowa jurors are highly sophisticated and not unmindful of the relationship between insurance premiums and awards. Our Constitution has put the jury system in place and, on balance, it works extremely well."

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A Clear Message

THE MESSAGE WAS CLEAR. In April, the 1987 IMS House of Delegates discussed and debated many important matters; but none of these issues were as sensitive and volatile as the Iowa Foundation for Medical Care, Iowa's peer review organization.

It was obvious that many physician delegates came to the annual meeting with one goal in mind — to let the House of Delegates and IMS leadership know how they feel about the IFMC.

As reported in the May IMS UPDATE, 8 resolutions submitted to the House of Delegates expressed concern over the quality of communications from the IFMC, the timeliness of the review process, federal laws under which the IFMC operates and other problems.

It may be true that some statements made were not completely accurate. Some were overstated, some personal and hurtful. But the message was clear; it could not be misunderstood. There has to be a change in the day-to-day interaction between the IFMC and practicing physicians.

To this end, IMS delegates took a number of actions. They asked that an indepth study of the IMS/IFMC relationship be completed by January of 1988. They asked the IMS membership to speak with federal lawmakers about the adverse effects of PRO laws. They resolved to work with IMS representatives to the IFMC Provider Advisory Committee to improve communications. Additional plans are underway for a series of meetings between IMS and IFMC leadership and staff.

The message is clear. Next year at this time, we will have a better relationship with the IFMC.

D Walter MD

Dennis J. Walter, M.D.
President

Iowa Physician Manpower: Disturbing Trends

CHARLES M. HELMS, M.D., Ph.D.
PAUL M. SEEBOHM, M.D.
ROGER D. TRACY, M.S.

Does Iowa have too many physicians or too few? What implications do physician manpower trends have for the future of health care? The authors examine the latest figures on Iowa's physician supply status and discuss what they may mean in the next decade.

IT HAS BECOME GENERALLY accepted that by the close of this decade America will have too many doctors.[1] The projected national surplus in 1990, estimated by methodology of the Graduate Medical Education National Advisory Committee (GMENAC), is 62,750 physicians.[2] While a physician glut may materialize for the nation in the aggregate, the likelihood of such occurring in Iowa in the near future appears slim.

Physician Supply Projections

Estimates of the Iowa physician supply for 1990 were presented recently to the Governor's Blue Ribbon Commission on Future Financing of Educationally Related Costs of the University of Iowa Hospitals and Clinics.[3] They project a shortage of physicians (Table 1). The estimates were compiled by University of Iowa Hospitals and Clinics staff from data collected by the Office of Community-Based Programs of the College of Medicine.

The estimates are based on counts of physicians entering and leaving practice in Iowa up until 1985. The supply of Iowa physicians projected for 1990 is 4,090. This is 1,626 fewer than the number the state needs using GMENAC findings to determine requirements.

Shortages of physicians in nearly all specialties are predicted. There will be a clear need for primary care physicians in the specialties of family practice, general internal medicine, general pediatrics and obstetrics-gynecology. Of the estimated 1,626 physician shortfall, 600 (37%) fall into this important category.

Disturbing Iowa Trends

More recent statistics on Iowa's physician manpower compiled during and since 1985 suggest further reasons for concern.[2] For the first time in over 10 years more physicians left practice than entered practice in Iowa. The total number of physicians on December 31, 1985 was 3,509, 14 fewer than on January 1, 1985 when 3,523 were in active practice. Preliminary data for 1986 show no clear reversal of this trend.

Examination of numbers of physicians entering and leaving practice from 1977 to 1985 permits a better understanding of the dynam-

Dr. Helms is associate dean and Dr. Seebohm is executive associate dean emeritus at the University of Iowa College of Medicine. Roger Tracy is director of the College of Medicine's Office of Community Based Programs.

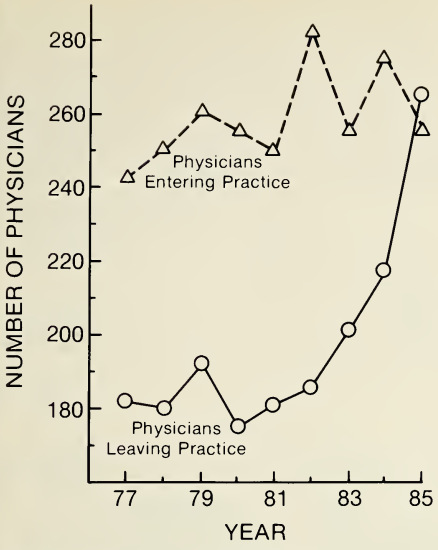


Figure 1. Numbers of physicians entering and leaving practice in Iowa from 1977 through 1985.

ics underlying recent losses (Figure 1). Over this 8-year period the number of physicians entering practice increased moderately, while the number of physicians leaving practice progressively increased. This produced a reduction in the net gain of doctors starting in 1983 which became significant in 1985.

Physicians terminating practices in 1985 fell into a bimodal age distribution with peaks in the 30-39 and 65 years and older age groups (Figure 2). Thirty-seven percent of terminees were 30-39 years old; 28% were over 65. This is a significant shift in the age of physicians leaving practice. In 1977, 65% of terminees were over age 65 and only 3% were 30 to 39.

Reasons given for terminating practice in 1985 were: relocation out of state (59%), retirement (28%), further training (5%), death (3%), health problems and other reasons (5%). Relocation and retirement are clearly the principal reasons for termination of practice in Iowa. When these reasons are matched against age, the peak of relocators falls in the 30-39 year age group and the peak of retirees in the group 60 years and older.

Although osteopaths constitute 12.7% of the Iowa physician population, this group comprised 20% of the physicians who left practice in 1985. Twenty-one percent of those relocating and 15% of those retiring were osteopathic physicians.

Most all specialties lost physicians to relocation and retirement. Family physicians, who comprise about 33% of all physicians in the state, were disproportionately represented among those leaving practice in 1985, especially among those retiring. Thirty-six percent of relocators and 42% of retirees were family physicians.

Physicians leaving practice in 1985 came from communities of all sizes in the state in roughly the same proportion as physicians are distributed by community. Seven percent of physicians leaving practice came from communities of 2,500 or fewer, where 8% of the state's physicians practice. There was no obvious disproportionate loss of physicians from smaller communities.

An analysis of relocating physicians by site of medical training suggests being a graduate of one or several of the University of Iowa medical educational programs or affiliated programs may increase "resistance" to relo-

(Please turn to page 274)

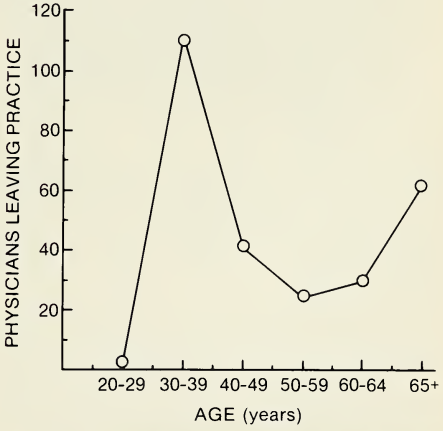


Figure 2. Age distribution of Iowa physicians leaving practice in 1985.

TABLE 1

IOWA PHYSICIAN SUPPLY: PROJECTION FOR 1990

1986 Supply of Physicians[1]		3,850
Total Physicians Entering Practice in Iowa Annually[2]	257	
Less Average Annual Attrition (1977-1985)[2]	−197	
Projected Average Annual Net Growth	60	
1990 Estimated Iowa Supply of Physicians [3,850 + (4 years × 60)]		4,090
1990 Estimated Requirement Per GMENAC Methodology[3]		5,716
PROJECTED IOWA SHORTAGE IN 1990		(1,626)

1. Includes all professionally active physicians (M.D.s and D.O.s) per the Office of Community-Based Programs, University of Iowa College of Medicine, "Iowa Physician Information System," 1986; and 0.3S of all residents and fellows in training in Iowa.

2. Office of Community-Based Programs, University of Iowa College of Medicine, "Iowa Physician Information System," 1986.

3. Based on national physician/population ratios (Derived from: Dept. of HHS, *GMENAC Summary Report*, Volume 1, p. 19, which were applied to the projected population of 2,913,500 for the State of Iowa in 1990 (Source: Iowa Development Commission).

Source: Data presented to the Governor's Blue Ribbon Commission on the Future Financing of Educationally Related Costs of the University of Iowa Hospitals and Clinics, November, 1986 by Dr. C. P. Goplerud, Professor, Department of Obstetrics and Gynecology, University of Iowa Hospitals and Clinics.

cation. About 49% of the state's physicians have had University of Iowa experience, but only 39% of relocators in 1985 were in that category.

Primary Care Implications

Access to health care is a constant concern for our geographically large and lightly populated state, especially when rural hospitals are in difficult financial straits and in danger of closing. Primary care physicians in the specialties of family practice, general internal medicine and pediatrics have always played a crucial role in delivering medical care in Iowa and insuring access to the health care system. This has been especially true of family doctors who comprise one-third of our physician population, but are the principal source of basic medical care for most Iowans. In 54 of our 99 counties, family doctors are the sole source of primary medical care.

Analysis of Iowa's most recent physician manpower statistics indicates the state experienced a net loss of primary care physicians in 1985. Eighty-eight family physicians left practice while 66 new practices were opened (net loss 22). Sixteen general internists left practice while 13 new practices opened (net loss 3). Thirteen pediatricians closed practices while 8 new practices opened (net loss 5). Continued losses of primary care physicians in our state could seriously jeopardize access to health care.

The uncertain climate with respect to meeting Iowa's primary care physician needs underscores the importance of the statewide community-based primary care residency programs. These programs in family practice (Cedar Rapids, Davenport, Des Moines, Iowa City, Mason City, Sioux City and Waterloo); internal medicine (Des Moines); and pediatrics (Des Moines) have helped Iowa keep pace with the high rate of retirement and relocation among primary care physicians. Of 531 physicians trained in these programs between 1978 and 1986, 260 (49%) have remained in Iowa.

Conclusions

Underlying reasons for the increasing number of physicians leaving practice in Iowa are not known with certainty. It is clear the trend coincides with a slow economy and a difficult medical malpractice climate. Substantive improvement of this physician manpower problem may require improvement of the state's economic and liability climate.

The need for primary care doctors clearly translates into demand. More than 150 Iowa communities are actively recruiting one or more of such physicians. In combination, the communities are offering practice opportunities for more than 200 doctors.

The need and demand for family physicians in Iowa make the statewide community-based primary care residency programs a valuable resource. Although much has been done, support of these outreach programs of the College of Medicine should be continued. Given the unlikelihood of a physician surplus in the state in the near future and the possibility of a worsening shortage, it would be unwise to reduce enrollment at the College of Medicine so long as the size of the graduating class (160) is substantially below the annual loss of physicians (260).

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Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: ***Teratogenic Effects:*** Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies,. the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤10 ml/min/1.73/m².

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200"- Bottles of 100 (NDC-0081-0991-55) and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light.

*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.

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Questions and Answers — An Interview with Scott R. Helmers, M.D., Chairman IMS Committee on Delivery of Health Services

Medical Manpower: A Physician's Point of View

Medical manpower is becoming an issue of great concern to physicians in Iowa and nationwide. The author, chairman of the IMS Committee on Delivery of Health Services, discusses the physician manpower picture in Iowa and AMA recommendations on future physician supply.

What is the IMS Committee on Delivery of Health Services doing in the area of physician supply and distribution?

The Committee reports annually to the IMS House of Delegates on medical manpower developments. Our charge is gathering and interpreting information. Our sources are the University of Iowa College of Medicine and the Board of Medical Examiners. The University provides statistical reports from its Office of Community Based Programs. The BME provides figures on satellite clinics.

Our committee also monitors physician assistant manpower and a representative of the PA Society usually attends our meetings.

What is the situation in Iowa?

There is concern among Iowa physicians about oversupply, and I share many of those concerns. Iowa physicians relate stories of intense competition. Statistics, however, do not show dramatic increases in the number of Iowa physicians. In 1985 there was a net loss of 14 physicians and early 1986 data show no gains.

The problems are distribution and specialty mix. After improved numbers in the 1970s and early 1980s, the number of family physicians declined by 22 in 1985. In 54 Iowa counties, family physicians provide all primary care. Over 150 Iowa communities seek family physicians. It would be hard to convince those Iowans there is a physician surplus. There are anecdotal reports of competition in specialties in urban areas, but we have no data on which specialties or cities have an oversupply.

It is natural for physicians to worry there will not be enough work to support future income expectations. National statistics show a dramatic rise in physician numbers. Everyone worries about job security and we are not immune from that worry.

Due to a predicted glut of physicians, the AMA has recommended close monitoring of medical school class size. What is your opinion?

The AMA recommendations are aimed at reducing medical school output. The "monitoring" relates to class size and quality of education. The point is education and clinical material are being diluted by high student numbers.

The AMA calls for a hard look at foreign medical schools and limits on imports of physicians whose training is not on par with U.S. graduates. The AMA supports enrollment in U.S. schools of underrepresented groups. More guidance is suggested to allow students to identify appropriate career choices. The AMA wants more analysis of manpower needs

Dr. Helmers is a family physician in Sibley, Iowa.

and involvement of government and citizens in a rational decision-making process. The AMA also hopes to institute a program to assist physicians seeking transition from full-time practice.

I believe the AMA recognizes the problem. The AMA, however, has to work with a physician constituency with diverse interests, a suspicious public and an often antagonistic government.

Who or what should determine the number of physicians?

I feel the federal government created the emerging surplus, so there is little reason to trust this matter to Congress. Because the government controls most of the financing, however, it will have a prominent role.

Market forces will have influence, but physician training takes so many years there will be lag times and overshoots. Unguided market forces cause waste and inefficiency.

Medical associations can have only a limited role. Attempts to reduce numbers will be seen as anti-competitive unless quality considerations are well delineated.

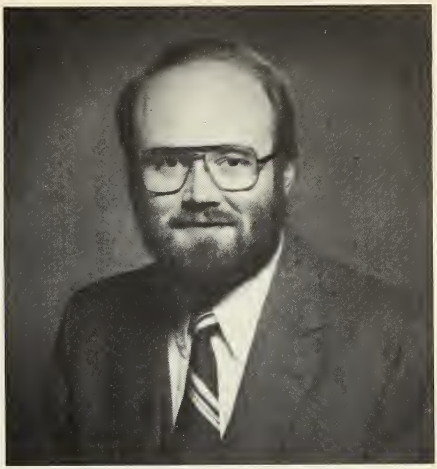
Ultimately, society will dictate physician numbers. Students will decide if medicine is a desirable field. Through political action, medical needs and expectations will be determined. People will decide if they are getting the services they want.

I believe medical and health related groups can provide thoughtful analysis. Public perceptions are formed from experience and information disseminated by health groups. Public desires will influence government policies. It is likely there will be an interplay of all forces resulting in compromises entirely satisfactory to no one.

Please outline your concerns regarding Iowa's physician supply.

My concerns, and the concerns of the IMS, relate to quality of care for Iowans. Many speculate an oversupply of physicians will mean too many procedures are done at too high a cost. The effect of intense competition on colleague relationships is also a concern.

On the other hand, I am also concerned about decreased access for rural Iowans. During the late 1970s and early 1980s, residency programs grew and family physicians located in smaller communities. Iowa lost 22 family physicians in 1985; 53% of physicians leaving an Iowa practice did so to relocate; a third of those were under age 40.



Dr. Helmers says "It is time for a thorough independent analysis of health-related schools."

There may be dissatisfaction among young physicians. If the state continues to lose young physicians and family physicians, a rural access problem may develop.

If physician numbers must be reduced, reputable medical schools are not the place to start. Enormous sums are spent on unscientific and deceptive "health care." All sorts of physician surrogates have materialized in recent years. We have absorbed graduates of almost unheard-of schools around the world.

It is time for a thorough, independent analysis of health-related schools. The Flexner Report is the obvious model. The study should include any school with a prominent number of graduates licensed or certified in this country. Open disclosure of the educational background of health care providers could allow the public to settle the manpower surplus issue. Though the study would pose many logistical problems, society would benefit from objective comparison of health care training centers.



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PEOPLES DRUG

Drug Treatment for Elderly Patients

GLENYS O. WILLIAMS, M.D., M.B., B.Ch., and TODD P. SEMLA, M.S., PHARM.D.
Iowa City, Iowa

This article, the most recent in a series from the IMS Subcommittee on Aging and Chronic Illness, highlights challenges in drug treatment for the elderly. The most useful drugs are identified; drugs to be avoided in the elderly and suggestions for alternative therapy are listed. Resources available to aid physicians in providing patient drug education are described.

PEOPLE 65 YEARS OF AGE and older comprise 13.9% of Iowa's population, fourth highest in the nation.[1] Iowa has the highest proportion of people 85 years and older and the numbers of elderly increase every year. The growth of the elderly population, particularly those over age 85, is not unique to Iowa.

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Aging brings increased use of prescription and nonprescription drugs.[2, 3] A recent FDA survey found nearly 1 of every 3 prescription drugs sold in America was purchased by a person aged 65 or older.[4] Surveys of drug use by the elderly estimate 76%-92% use at least 1 prescription or nonprescription drug.[3, 5, 6] With increased use of drugs come increased adverse reactions, side effects and toxicity.[7, 8]

The objectives of this article are: (1) to briefly review the most useful drugs in the care of older patients and drugs most likely to cause problems; and (2) to identify resources on drug therapy to aid physicians in the care and management of elderly patients.

Useful Drugs For Geriatric Patients

Certain drugs such as penicillin and insulin are essential for patients of all ages. We concentrate on medications frequently prescribed for elderly patients and indicate which drugs in each class are the best choice. These choices are based upon the drug's pharmacokinetic and pharmacologic profile and its risk of side effects, adverse reactions and toxicity in the elderly. Cost and frequency of dosing are also considered.

Antipsychotics

Antipsychotic drugs are often needed for demented patients but should not be used until other methods of behavioral management have been tried. Recently, low stimulus en-

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR THE MONTH OF JUNE 1987

TABLE 1

ANTIPSYCHOTIC DRUGS, SIDE EFFECTS, AND RECOMMENDED DOSES FOR ELDERLY PATIENTS IN ORDER OF PREFERENCE

Generic Name	Trade Name	Initial Daily Dose (b.i.d.-t.i.d.)	Relative Incidence of Side Effects				
			Sedation	Orthostatic Hypotension	CVS*	Extrapyramidal Symptoms	Anticholinergic
Thioridazine	Mellaril	10-25 mg	High	High	High	Low-medium	High
Thiothixene	Navane	2-3 mg	Low	Medium	Low	High	Low
Haloperidol	Haldol	0.5-2 mg	Very low	Low	Very low	Very high	Very low
Trifluoperazine	Stelazine	2-4 mg	Low	Low	Low	High	Low
Fluphenazine	Prolixin	0.5-2 mg	Low	Low	Not Available	Medium	Low
Chlorpromazine	Thorazine	10-25 mg	High	High	High	Medium	Medium

*Reversible EKG changes, Cardiac arrest, Tachycardia.

vironments have proved valuable for reducing agitation and wandering.[9] Patients should be evaluated for physical illness as a cause of changed behavior or mental status before antipsychotic drugs are prescribed.

Table 1 shows commonly used antipsychotic drugs and potential side effects that must be considered. Other possible side effects of antipsychotic drugs include reduced seizure threshold and temperature regulation. Haloperidol (Haldol) is frequently used but is the most likely to produce extrapyramidal side effects. The risk of pseudoparkinsonism, dystonia and irreversible tardive dyskinesia must be weighed against the drug's benefits. Thioridazine (Mellaril) is probably the best choice but should not be used for patients with benign prostatic hypertrophy or glaucoma because of its anticholinergic effects.

Doses are kept low (Table 1). Single drug therapy is preferable and p.r.n. intramuscular doses should be the same as the routinely administered drug. The only exception might be an intramuscular form needed for a patient maintained on an oral drug not available in an injectable form [e.g., mesoridazine besylate (Serentil) may be given to a patient who has been maintained on oral thioridazine (Mellaril)].

TABLE 2

RECOMMENDED BENZODIAZEPINES FOR ELDERLY PATIENTS IN ORDER OF PREFERENCE

Generic Name	Trade Name	FDA-Approved Indications	Initial Dose for Elderly
Lorazepam*	Ativan	Hypnotic/anxiety	0.5 mg q.h.s.
Oxazepam*	Serax	Anxiety	10.0 mg t.i.d.
Triazolam†	Halcion	Hypnotic	0.125 mg q.h.s.
Alprazolam	Xanax	Anxiety	0.25 mg b.i.d.
Temazepam	Restoril	Hypnotic	15.0 mg q.h.s.
Flurazepam	Dalmane	Hypnotic	15.0 mg q.h.s.
Diazepam	Valium	Anxiety Muscle relaxant Acute EtOH withdrawal Anticonvulsant Preoperative	2.0 mg q.d.

*Best choice for anti-anxiety agent.
†Best choice for sedative hypnotic agent.

Benzodiazepines

Most hypnotics, sedatives and antianxiety agents are benzodiazepines, a class of drugs best avoided in elderly patients. There is increased brain sensitivity to these drugs in old age; prolonged sedation, confusion and even disinhibition can occur, which may tempt the physician to prescribe more sedatives. Table 2 lists recommended benzodiazepines in order of preference for older patients and shows the approved indications and initial doses. Lorazepam (Ativan) and oxazepam (Serax) are the best choices for antianxiety agents; triazolam (Halcion) is probably the best hypnotic. Although flurazepam (Dalmane) is often used, the long half-life (47-100 hours) and accumulation make it a poor choice for the elderly.

TABLE 3

TRICYCLIC ANTIDEPRESSANTS, SIDE EFFECTS, AND RECOMMENDED DOSES FOR ELDERLY PATIENTS IN ORDER OF PREFERENCE

Generic Name	*Trade Name*	*Initial Daily Dose*	*Relative Incidence of Side Effects*	
			Sedation	*Anticholinergic*
Desipramine*	Norpramin, Pertofrane	25 mg	Low	Very low
Nortriptyline*	Aventyl, Pamelor	10-25 mg	Low	Very low
Imipramine	Tofranil, SK-Pramine	30-40 mg	High	Low
Protriptyline	Vivactil	5-10 mg	Very low	Medium
Doxepin	Adapin, Sinequan	25 mg	High	High
Amitriptyline	Elavil	20-30mg	Very high	Very high

*Best Choice

Antidepressants in extremely small doses are sometimes useful as hypnotics, e.g., desipramine, 25 mg (Norpramin, Pertofrane).

Anti-Depressants

Depression occurs in 10% of those age 65 years or older and treatment with an antidepressant can produce dramatic results. Antidepressants are also used as diagnostic tools when differentiating depression from dementia in elderly patients who present without the classic symptoms of depression. Problems frequently associated with tricyclic antidepressants are sedation and anticholinergic effects. Therefore, desipramine or nortriptyline are the initial choices among the antidepressants since they offer the lowest sedation and anticholinergic profile.

Table 3 shows commonly used antidepressants on a sedation and an anticholinergic

(Please turn to page 282)

TABLE 4

NONSTEROIDAL ANTI-INFLAMMATORY DRUGS, RELATIVE INCIDENCE OF ADVERSE REACTIONS AND SIDE EFFECTS, AND RECOMMENDED DOSES FOR ELDERLY PATIENTS IN ORDER OF PREFERENCE

Generic Name	*Trade Name*	*Dose — Take with Food*	*GI Bleeding*	*Renal Toxicity*	*Other*	*Cost*
Ibuprofen	Motrin Rufen	300 mg t.i.d. 400 mg q.i.d.	Medium	Medium	Medium	Low
Diflunisal	Dolobid†	500 mg stat 250-500 mg b.i.d.	Medium	Medium	Medium	Very high
Sulindac	Clinoril	150-200 mg b.i.d.	Medium	Medium	Medium	High
Piroxicam	Feldene	20 mg q.d.	Medium	Medium	Medium	Very high
Fenoprofen Calcium	Nalfon	200 mg q.4.h.-q.6.h.	Medium	Medium	Medium	Very high
Tolmetin	Tolectin	400 mg t.i.d.	Medium	Medium	Medium	High
Naproxen	Naprosyn*	250-375 mg b.i.d.	Very high	Medium	Medium	High
Naproxen Sodium	Anaprox*	275 mg b.i.d. or 275 mg q.a.m. and 2 x 275 mg q.h.s.	Very high	Medium	Medium	High
Phenylbutazone	Butazolidin	Not recommended	Medium	Medium	High‡	Low (generic)
Indomethacin	Indocin†	25-250 mg t.i.d. or q.i.d.	Very high	Medium	High§	Medium

*Do not give Naprosyn and Anaprox together.
†Do not give Indocin and Dolobid together.
‡Agranulocytosis.
§Psychosis.

DRUG TREATMENT FOR ELDERLY PATIENTS

(Continued from page 281)

scale. Use of a different tricyclic and giving the entire dose at bedtime may reduce the problem of oversedation. Anticholinergic side effects of dry mouth can be relieved by increased fluids, hard sugarless candy and artificial saliva. It may be necessary to prescribe a stool softener. Patients who develop urinary retention, blurred vision or delirium are often best managed by the use of an agent with less anticholinergic effects.

Other side effects include various skin rashes which usually occur in the first 2 months of treatment and rarely require discontinuing therapy. Patients who show orthostatic changes before treatment are predisposed to postural hypotension. Nortriptyline (Aventyl, Pamelor) causes significantly less orthostasis and may be the drug of choice. Electrocardiographic changes (increased P-R interval, QRS duration, flattened T-waves) may occur. ECGs should be taken before and after initiation of therapy. Patients with heart disease may be predisposed to heart failure. Combination products of amitriptyline and perphenazine (Triavil, Etrafon) should be avoided. An antipsychotic is usually not required in treatment of depression and the possibility of extrapyramidal side effects and tardive dyskinesia must be acknowledged. The combination is also more likely to cause anticholinergic side effects and sedation.

Nonsteroidal Anti-inflammatory Drugs (NSAIDs)

Many elderly patients request relief for joint pains and a satisfactory drug can be hard to identify. The drug of choice is aspirin. If it cannot be tolerated in any form or is ineffective at adequate doses, a nonsteroidal anti-inflammatory drug can be tried. Hypersensitivity to aspirin is a contraindication for NSAIDs. There is marked variation in individual response to different NSAIDs, which may be tried for 2 weeks at a time until an effective one is found. The dose should be reviewed after one or 2 weeks. Aspirin and NSAIDs taken together may lower the NSAID serum level, so this combination of drugs should be avoided.

Problems with NSAIDs specific to the elderly include: 1) renal toxicity superimposed on the reduced renal function of old age; 2) higher morbidity and mortality from gastrointestinal bleeding, especially with indomethacin (Indocin)[10-13]; 3) fluid retention that may aggravate underlying congestive heart failure or hypertension; 4) interactions with drugs commonly taken by older patients such as anticoagulants, lithium, diuretics, and other NSAIDs, e.g., indomethacin (Indocin) with diflunisal (Dolobid); 5) tinnitus; and 6) psychosis due to indomethacin.

Table 4 shows nonsteroidal anti-inflammatory drugs, doses and the relative incidence of adverse reactions. Patients on NSAIDs should be monitored for: 1) liver function (alkaline phosphatase, SGPT), 2) renal function (creatinine clearance), and 3) platelet function (CBC, stool guaiac). They should be instructed to report gastrointestinal symptoms, blurred vision, rashes, weight gain and edema. The drug should be discontinued if signs of renal or hepatic toxicity occur.

Drugs Likely to Cause Problems in Elderly Patients

Certain drugs in each class can cause difficulties in elderly patients. Reduced kidney function in old age leads to slow excretion and accumulation of drugs, and drugs may reach toxic levels more readily. Reduced liver function, lean body mass and plasma-binding properties are altered in old age and can affect drug metabolism. Table 5 lists drugs which can cause the most serious problems. A list of available alternative drugs is included.

Sources of Patient Education on Drugs

Table 6 identifies sources of drug information for elderly patients that can be provided through physicians and pharmacies.

The Patient Medication Instruction Program (PMI) is produced by the American Medical Association. Each PMI contains accepted statements about a drug in understandable language. PMIs are available on 81 commonly prescribed drugs. To minimize the risk of alarming patients with an overload of information, PMIs do not list all reported rare adverse reactions. Each PMI consists of a pad of sheets with information on a drug or drug class. One sheet is given to patients with each prescription.

(Please turn to page 284)

Before prescribing, see complete prescribing information in SK&F CO. literature or *PDR*. The following is a brief summary.

* **WARNING**

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

Warnings: Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K^+ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K^+ intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of triamterene and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Angiotensin-converting enzyme (ACE) inhibitors can elevate serum potassium; use with caution with 'Dyazide'. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin [ACTH]). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur; transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function. Thiazides may add to or potentiate the action of other antihypertensive drugs. Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth, anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

Supplied: 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

BRS-DZ:L42

In Hypertension*... When You Need to Conserve K^+

Remember the Unique Red and White Capsule: Your Assurance of SK&F Quality

Serum K^+ and BUN should be checked periodically (see Warnings and Precautions).



Potassium-Sparing

DYAZIDE®

25 mg Hydrochlorothiazide/**50 mg** Triamterene/SKF

Over 20 Years of Confidence

The unique red and white Dyazide® capsule: Your assurance of SK&F quality.



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Carolina, P.R. 00630

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Motrin® 800 mg TABLETS
ibuprofen



Extra strength
Convenience
Economy

Upjohn
A Century of Caring
1886-1986

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J-6138 January 1986

TABLE 5

DRUGS TO AVOID IN ELDERLY PATIENTS, REASONS FOR AVOIDANCE, AND SUGGESTIONS FOR ALTERNATIVE DRUGS

Drug Class	*Drugs to Avoid*	*Reason for Avoidance*	*Alternative Drugs/Comments*
CARDIOVASCULAR DRUGS	*Potassium-sparing diuretics* Dyazide Aldactazide Moduretic	Hyperkalemia	Thiazide diuretics
	Beta-blockers Propranolol (Inderal, Inderide) Atenolol (Tenormin) Timolol (Blocarden, Timolide) Metoprolol (Lopressor) Nadolol (Corgard)	Postural hypotension, increased likelihood of developing CHF	Thiazide diuretics
	Anticoagulants Warfarin (Coumadin)	Bleeding complications more frequent	Aspirin
	*Digitalis** Digoxin (Lanoxin)	Toxicity more frequent due to reduced renal clearance; often not indicated for CHF long-term unless there is atrial fibrillation	— — — —
	Antihypertensives Prazosin (Minipress)	Postural hypotension	Reserpine (Serpasil)
	Guanethidine (Ismelin) Methyldopa (Aldomet)	Confusion, postural hypotension	Hydralazine (Apresoline)
PSYCHOACTIVE DRUGS	*Barbiturates*	Confusion, prolonged half-life	
	Benzodiazepines Diazepam (Valium)	Increased sensitivity with aging; prolonged sedation/confusion, disinhibition	Triazolam (Halcion) short acting, do not prescribe > 3 weeks Chloral hydrate
	Flurazepam (Dalmane)	More toxic in doses > 15 mg Makes sleep apnea worse	
	Antidepressants Amitriptyline (Elavil) Imipramine (Tofranil, SK-Pramine)	Anticholinergic and sedative effects	Desipramine (Norpramin) Nortriptyline (Aventyl) See Tables 1-3
	Lithium	Toxicity develops readily	
ANTIDIABETIC DRUGS	Long-acting oral hypoglycemics, e.g., chlorpropamide (Diabinese)	Risk of hypoglycemia and hyponatremia	Drugs with shorter half-life: tolbutamide (Orinase), tolazamide (Tolinase)
ANTIASTHMATICS	Theophylline*	Prolonged half-life Drug interactions with Cimetidine, Erythromycin, Propranolol	
ANTIHISTAMINES	Diphenhydramine (Benadryl)	Increased confusion; alerting effect	Hydroxyzine (Atarax)
HISTAMINE H_2 RECEPTOR ANTAGONISTS	Cimetidine (Tagamet)	Mental confusion in patients with decreased renal function	Ranitidine (Zantac) May reduce renal function
NONSTEROIDAL ANTI-INFLAMMATORY DRUGS	Phenylbutazone (Butazolidin) Indomethacin (Indocin)	Agranulocytosis Psychosis; increased risk of GI bleeding; decreased renal function	Other NSAIDs See Table 4
ANALGESICS	Pentazocine (Talwin)	Confusion, narcotic agonist and antagonist	Aspirin, acetaminophen, codeine
ANTIBIOTICS	Nitrofurantoin (Furadantin, Macrodantin)	Peripheral neuropathy Pulmonary fibrosis, poor renal function (CrCl < 40 ml/min)	Sulfonamides

*Monitor with blood levels.

DRUG TREATMENT FOR ELDERLY PATIENTS

(Continued from page 282)

TABLE 6

SOURCES OF DRUG INFORMATION FOR ELDERLY PATIENTS

Source/Sponsor	*Address*	*Cost*
Patient Medication Instruction Program (PMI) American Medical Association	To order by mail write to: PMI Order Department American Medical Association P.O. Box 10946 Chicago, IL 60610 For information only call: 312-280-7168	$1.00/pad (100 sheets/pad; minimum 10 pads; payment must accompany order)
Elder-Ed National Institute on Drug Abuse U.S. Dept. of Health and Human Services	National Institute on Drug Abuse, Bethesda, MD 20205 To order by phone call: National Clearinghouse for Drug Abuse Information 301-443-6500	Free
ElderCare Program Parke-Davis	Coordinator Professional and Trade Relations, Parke-Davis 201 Tabor Road Morris Plains, NJ 07950 201-540-2000	Free

The National Institute on Drug Abuse has free packets of information for patients, *Using Medicines Wisely* and *Passport to Good Health Care*. Topics covered include preparing for a doctor visit and organizing a system for taking medicines. There is a small 16-page booklet for the wallet or purse with space for health information and current medication.

Parke-Davis' Elder-Care Program is designed to initiate dialogue between patients and their pharmacists and physicians. It includes a free poster for pharmacies, a brochure *As We Grow Older*, a slide-script presentation for use by pharmacists speaking to senior citizen groups,a videotape program (for loan) and the Elder-Care Newsletter for health care professionals (free).

Pharmacists have more frequent contact with patients than physicans. As a result, they may know more about a patient's medication-taking behavior and whether a drug therapy regimen is effective. Pharmacists are a major source of information about drugs for older patients; their role as patient educators and compliance supervisors of drug therapy is invaluable. Physicians are often unaware of pharmacists' skills, training and capabilities in the management of drug therapy.

A 1984 FDA survey suggested physicians should make patient education materials available; but patients must be motivated to ask for them and doctors must be motivated to provide them.

References

The references noted in this paper are available either from the authors or the editor of IOWA MEDICINE.

Physician Volunteers Needed

A number of physician volunteers are needed to assist with the first Iowa Games, scheduled for August 7-9 at Iowa State University.

The Iowa Games are a multi-sport festival of Olympic-style competition for Iowa's amateur athletes of all ages and abilities. Iowa has become one of 36 states organizing state games. Events will include softball, track and field, soccer, wrestling, swimming, tennis, judo and others. Anyone who has resided in Iowa for 30 days or more is eligible to compete. Events for people with disabilities are included as well as exhibition or demonstration sports.

Though primary care physicians are particularly needed, any physician interested in assisting with the Games is urged to contact Mark Broderson, M.D., McFarland Clinic, 515/239-4475; or Lonnie Clark at 515/278-8444.

Revenue for the Games will be generated by private and corporate sponsorship, entry fees, ticket sales and souvenirs. The IMS Board of Trustees has approved a $500 contribution to the Games.



...but in every legislative session, they vote on nearly 250 bills that determine the kind of care you can provide to your patients!

Medicine's views on these important issues are critical to ensuring that good legislation becomes law — and that bad legislation doesn't. IMPAC helps make sure that our views are heard!

IMPAC supports legislative candidates whose voting records and personal philosophies indicate a willingness to listen to and appreciate medicine's views. By supporting IMPAC, you'll be helping to see that the non-physicians in the Legislature continue to receive the best medical advice on legislation which affects our patients and our profession!

Enclosed is my check for $100. Please enroll me as a Sustaining Member of IMPAC and AMPAC.

Name _____

Address _____

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Complete and send to: IMPAC, 1001 Grand Ave., West Des Moines, Iowa 50265

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1001 Grand Avenue / West Des Moines, Iowa / Telephone 515-223-1401

Contributions are not limited to the suggested amount. Neither the AMA nor the IMS will favor or disadvantage anyone based upon the amounts of or failure to make pac contributions. Contributions are subject to the limitations of FEC Regulations. (Federal Regulations require this notice.) Paid for by the Iowa Medical Political Action Committee, 1001 Grand Avenue, West Des Moines, IA 50265.

Marion E. Alberts, M.D.

The Editor Comments



Then and Now

A MUTE REMINDER of past medical practice holds a prominent place on Walnut Hill at the Living History Farms near the northwest edge of Des Moines. The original office of R.B. Armstrong, M.D., was dismantled in Polk City and restored as part of the heritage of Living History Farms. Doctor Armstrong built his home and office in Polk City during the 1860's, continuing his medical practice there through his lifetime.

The simple office common to that period is very different from today's complex clinics, offices and hospital outpatient facilities. A small 2-room brick building stood alone. Little privacy was afforded the patient in the single examining room/waiting room/office.

Home visits were the rule; there were no set office hours. The home nearby afforded continuing access to the doctor. The obituary of Doctor Armstrong, which appeared in the *Des Moines Register and Leader* on November 9, 1905, records an insight to the life of the medical practitioner of the day. "The visits of this pioneer physician were made by horseback or buggy with saddle bags for medicine chests and over thinly settled country with trails for roads. Doctor Armstrong repeatedly was pulled out of the water of swollen streams and otherwise endured all the hardships of the pioneer practitioner who traveled from twenty to forty miles in making his calls. It took indomitable courage. Doctor Armstrong was loyal to the interest of the community with which he was identified, and was prominent in all the good works of the country."

The country physicians of that time had to compete with home remedies and patent medicines. Surgical treatment was simple; amputations were usual. There was minimal concern for sanitation. Dental care was often in the domain of the physician.

"The practice of medicine in Iowa, however, is not centered upon the high-rise medical centers and clinics. The practitioners in the smaller towns and cities are the mainstay of Iowa medicine."

Medical practice today is complex. There have been tremendous advancements in the knowledge of disease origins (viral, bacteriologic, environmental and genetic) and the technology of diagnosis and treatment. The "business" of medicine increases the complexity of medical care.

The practice of medicine in Iowa however, is not centered upon the high-rise medical centers and clinics. The practitioners in the smaller towns and cities are the mainstay of Iowa medicine. It is true numerous local offices may be satellites of larger clinical groups. They promote basic care locally but provide specialized care by their association with larger centers.

Communication is facilitated by computer technology. Still, many practitioners have no such associations and provide for their patients in an excellent manner. These skills are directed to primary care as well as the knowledge to seek proper consultation when indicated.

Americans pride themselves in the concepts of free-enterprise. In medicine, that freedom has been usurped to a large extent by governmental mandates and regulations and restrictions promulgated by third party payors. Our profession is not alone in these undesirable conditions; yet, society condones and promotes such situations mostly because of governmental intervention. Some is good; a lot is too much.

This issue of IOWA MEDICINE addresses medical manpower and opportunities available in Iowa for the practice of medicine. The problems and solutions are complex. Ongoing cooperation involving our profession and other professions, the community as a whole, and governmental bodies is imperative. Together we can provide good medical care to all. — M.E.A.

Odds and Ends

INTERESTING ODDS AND ENDS of medical history that you may not have known, or may have forgotten:

The pharaohs of Ancient Egypt maintained large staffs of physicians to protect the royal health. Some of these physicians were specialists. One doctor, by name Irj (c. 2500 B.C.), is described on his tomb as "shepherd of the anus" — a title which, it can be conceded, has considerable charm and pizazz.

In the 4th century B.C., the reknowned Alexandrian doctor, Erasistratus, cured Antiochus, the king's son, of his deep melancholy by checking his pulse as the ladies of the court passed by. The pulse of the prince became very rapid when his stepmother appeared. Erasistratus diagnosed the case as one of love, and persuaded the king to divorce his wife so his son could marry her.

In 2nd century B.C. Rome, the statesman, Cato the Elder, resented the influx of Greek doctors into Rome, calling them all charlatans. He had his own ideas, and considered cabbage juice to be the cure of everything. He imposed this therapy on all who lived on his estates, including his wife and a son, both of whom died on this therapeutic regimen due to his refusal to call in a doctor.

Now for Petrus Hispanus, a well known physician in 13th century Rome. His book *Liber de Oculo* was a standard eye text, and his *Thesaurus Pauperum* has been described as an "indispensable reference book" that survived for centuries.

What else do we know about Petrus Hispanus? Just this: In 1276 he ascended the papal throne to become Pope John XXI — not bad for a doctor. Unfortunately, after only 7 months as pope, he was killed when the roof of his house collapsed.

Leonardo da Vinci, the 15th century Roman artist and genius, studied anatomy by performing over 30 human body dissections. The notes accompanying his anatomical drawings were written with his left hand and were written backwards, so that to be read, they had to be held up to a mirror.

In 17th century London, William Harvey described the circulation of the blood in a revolutionary treatise which completely discredited the century-old Galen theory of circulation, but which was greeted with ridicule, for a time, by many followers of Galen. Playing on words, one detractor called Harvey a "circulator" — an itinerant quack. Others stated: "I prefer to err with Galen than to accept Harvey's truth."

By the early 18th century, before Edward Jenner's great work, it was known that having smallpox conferred immunity against subsequent attack. Attempts were made by some to innoculate against smallpox with material from the pustule of a mild case. Although fraught with danger, it was sometimes successful, and when Dr. Thomas Dimsdale of London suc-

(Please turn to page 288)

ODDS AND ENDS

(Continued from page 287)

cessfully innoculated Catherine the Great of Russia against smallpox, he received for his trouble 12,000 English pounds and a lifetime annuity of 500 pounds.

Do the names John James Phipps and Sarah Nelmes mean anything to you? Well they were players in one of medicine's great dramas: the first successful vaccination against smallpox. In 1796, Edward Jenner, a country doctor in England, vaccinated eight year old John James Phipps with liquid from a cowpox pustule on the hand of dairymaid Sarah Nelmes. Later, an attempt to innoculate the boy with smallpox failed, proving the validity of the cowpox vaccination. The word "vaccination," incidentally, comes from the Latin "vacca," meaning "cow."

Jenner submitted a paper on his vaccination results to the Royal Society, which promptly rejected it "on the ground that its contents would spoil the name that he had gained by his previous researches on the cuckoo." He did succeed, however, in publishing his findings 2 years later, and world fame followed.

What famous doctor was driven insane by his critics? In the mid-19th century, a young Hungarian doctor, Ignatz Semmelweis, working on a maternity ward in the prestigious Vienna General Hospital, repeatedly proved, beyond any reasonable doubt, that the prevalent and commonly fatal puerperal fever could be prevented by the simple expedient of medical students and doctors washing their hands in chlorinated lime water prior to examining patients. The conclusion, stressed by Semmelweis, was inescapable that the women were being infected by the examiners. This finding and its conclusion were met by Semmelweis' peers, his superiors, and most of the renowned doctors in Europe with disbelief, derision and contempt.

The scorn and denigration ultimately caused the emotional Semmelweis to "flee" Vienna and return to his native Budapest where he received the same treatment as elsewhere. He returned to Vienna, went insane, was institutionalized, and not long after that died at the age of 47.

We think there is something to be learned from some of these scraps and bits of medical history, but we're not quite sure what it is. Perhaps it is that, in some of these tales, there is a reaffirmation of an old adage — "none is so blind as he who will not see." — *Daniel F. Crowley, M.D.*

Recent Books

Grauer, Ken, M.D. and Curry, R. Whitney, Jr., M.D., *Clinical Electrocardiography: A Primary Care Approach*, Medical Economics Books, Oradell, New Jersey, Paperback, $24.95. A comprehensive guide for primary care physicians on ECG interpretation. Equally applicable for readers with beginning, intermediate or moderately advanced experience, the problem-solving, clinically oriented approach leads to enjoyable reading and high retention. The book includes a handy illustrated reference guide to much of the diagnostic data that can be detached for use as a pocket guide. This book is ideal for primary care physicians, medical students, residents and nurses.

Dietitians' Food Favorites, 1987, RESTAURANTS AND INSTITUTIONS magazine, Cakners Publishing Company, Des Plaines, Illinois, $25.00. In answer to consumer awareness of the role of good nutrition in the maintenance of good health, The American Dietetic Association Foundation has published a cookbook which provides personalized mealtime suggestions. Not a diet cookbook, *Dietitians' Food Favorites* includes the nutrient content of over 500 "palate-pleasers" and is a fundraiser for the Foundation's program. Cookbooks are available for $25.00 each (includes postage and handling) from the ADA Foundation, 430 North Michigan Avenue, Chicago, Illinois 60611.

CONFIRMED

CONFIRMED BY CLINICAL EVIDENCE

ZANTAC® 150 h.s.

ranitidine HCl/Glaxo 150 mg tablets

EFFECTIVE MAINTENANCE THERAPY

for healed duodenal ulcer patients

See last page for references and
Brief Summary of Product Information.

Glaxo / ROCHE

CONFIRMED

In two randomized, double-blind, and well-controlled clinical trials, ZANTAC 150 mg h.s. significantly superior to cimetidine 400 mg h.s. for maintenance therapy in healed duodenal ulcers.

Percent of patients with observed duodenal ulcer recurrence

		0-4 months	0-8 months	0-12 months	No. patients
USA[1]	ranitidine 150 mg h.s.	9%	14%*	16%†	60
	cimetidine 400 mg h.s.	23%	34%	43%	66
UK, Ireland, Australia[2]	ranitidine 150 mg h.s.	8%‡	14%‡	23%‡	243
	cimetidine 400 mg h.s.	21%	34%	37%	241

*p=0.02
†p=0.01
‡p≤0.004
%=life-table estimates
All patients were permitted prn antacids for relief of pain.

These two trials used the currently recommended dosing regimen of cimetidine (400 mg h.s.) and ranitidine (150 mg h.s.). A comparison of other dosing regimens has not been studied.

The studied dosing regimens are not equivalent with respect to the degree and duration of acid suppression or suppression of nocturnal acid.

The superiority of ranitidine over cimetidine in these trials indicates that the dosing regimen currently recommended for cimetidine is less likely to be as successful in maintenance therapy.

Convenient once-a-night dose with a

low incidence of side effects[3]

Headache, sometimes severe, seems to be related to ranitidine administration. Other side effects have been reported; for a complete listing, see the **ADVERSE REACTIONS** section in the Brief Summary.

No significant interference with the hepatic cytochrome

P-450 enzyme system at recommended doses

ZANTAC 150 mg has no significant drug interactions with theophylline, phenytoin, or warfarin. The bioavailability of certain medications whose absorption is dependent on a low gastric pH may be altered when ZANTAC or other medications that decrease gastric acidity are administered.

Zantac® 150
ranitidine HCl/Glaxo 150 mg tablets

One tablet at bedtime
for maintenance

See next page for references and
Brief Summary of Product Information.

Glaxo / ROCHE®

CONFIRMED

Zantac® 150

ranitidine HCl/Glaxo 150 mg tablets

One tablet at bedtime for maintenance therapy in healed duodenal ulcer patients

References:

1. Silvis SE, Griffin J, Hardin R, et al: Final report on the United States multicenter trial comparing ranitidine to cimetidine as maintenance therapy following healing of duodenal ulcer. *J Clin Gastroenterol* 1985;7(6):482-487.
2. Gough KR, Korman MG, Bardhan KD, et al: Ranitidine and cimetidine in prevention of duodenal ulcer relapse: A double-blind, randomised, multicentre, comparative trial. *Lancet* 1984;ii:659-662.
3. Data available on request, Glaxo Inc.

ZANTAC® 150 Tablets (ranitidine hydrochloride)
ZANTAC® 300 Tablets (ranitidine hydrochloride)

BRIEF SUMMARY OF PRODUCT INFORMATION

The following is a brief summary only. Before prescribing, see complete prescribing information in ZANTAC® product labeling.

INDICATIONS AND USAGE: ZANTAC® is indicated in:

1. Short-term treatment of **active duodenal ulcer.** Most patients heal within four weeks.
2. **Maintenance therapy** for duodenal ulcer patients at reduced dosage after healing of acute ulcers.
3. The treatment of **pathological hypersecretory conditions** (eg, Zollinger-Ellison syndrome and systemic mastocytosis).
4. Short-term treatment of **active, benign gastric ulcer.** Most patients heal within six weeks and the usefulness of further treatment has not been demonstrated.
5. Treatment of **gastroesophageal reflux disease (GERD).** Symptomatic relief commonly occurs within one or two weeks after starting therapy and is maintained throughout a six-week course of therapy.

In active duodenal ulcer; active, benign gastric ulcer; hypersecretory states; and GERD, concomitant antacids should be given as needed for relief of pain.

CONTRAINDICATIONS: ZANTAC® is contraindicated for patients known to have hypersensitivity to the drug.

PRECAUTIONS: Symptomatic response to ZANTAC® therapy does not preclude the presence of gastric malignancy.

Since ZANTAC is excreted primarily by the kidney, dosage should be adjusted in patients with impaired renal function (see **DOSAGE AND ADMINISTRATION**). Caution should be observed in patients with hepatic dysfunction since ZANTAC is metabolized in the liver.

False-positive tests for urine protein with Multistix® may occur during ZANTAC therapy, and therefore testing with sulfosalicylic acid is recommended.

Although recommended doses of ZANTAC do not inhibit the action of cytochrome P-450 enzymes in the liver, there have been isolated reports of drug interactions which suggest that ZANTAC may affect the bioavailability of certain drugs by some mechanism as yet unidentified (eg, a pH-dependent effect on absorption or a change in volume of distribution).

Lack of experience to date precludes recommending ZANTAC for use in children or pregnant patients. Since ZANTAC is secreted in human milk, caution should be exercised when administered to a nursing mother.

ADVERSE REACTIONS: Headache, sometimes severe, seems to be related to ZANTAC® administration. Constipation, diarrhea, nausea/vomiting, and abdominal discomfort/pain have been reported. There have been rare reports of malaise, dizziness, somnolence, insomnia, vertigo, tachycardia, bradycardia, premature ventricular beats, and arthralgias. Rare cases of reversible mental confusion, agitation, depression, and hallucinations have been reported, predominantly in severely ill elderly patients.

In normal volunteers, SGPT values were increased to at least twice the pretreatment levels in 6 of 12 subjects receiving 100 mg qid IV for seven days, and in 4 of 24 subjects receiving 50 mg qid for five days. With oral administration there have been occasional reports of reversible hepatitis, hepatocellular or hepatocanalicular or mixed, with or without jaundice.

There have been rare reports of reversible leukopenia, granulocytopenia, thrombocytopenia, and pancytopenia.

Although controlled studies have shown no antiandrogenic activity, occasional cases of gynecomastia, impotence, and loss of libido have been reported in male patients receiving ZANTAC, but the incidence did not differ from that in the general population.

Incidents of rash, including rare cases suggestive of mild erythema multiforme, and, rarely, alopecia, have been reported, as well as rare cases of hypersensitivity reactions (eg, bronchospasm, fever, rash, eosinophilia) and small increases in serum creatinine.

OVERDOSAGE: Information concerning possible overdosage and its treatment appears in the full prescribing information.

DOSAGE AND ADMINISTRATION: Active Duodenal Ulcer: The current recommended adult oral dosage is 150 mg twice daily. An alternate dosage of 300 mg once daily at bedtime can be used for patients in whom dosing convenience is important. The advantages of one treatment regimen compared to the other in a particular patient population have yet to be demonstrated.

Maintenance Therapy: The current recommended adult oral dosage is 150 mg at bedtime.

Pathological Hypersecretory Conditions (such as Zollinger-Ellison Syndrome): The current recommended adult oral dosage is 150 mg twice a day. In some patients it may be necessary to administer ZANTAC 150-mg doses more frequently. Doses should be adjusted to individual patient needs, and should continue as long as clinically indicated. Doses up to 6 g/day have been employed in patients with severe disease.

Benign Gastric Ulcer: The current recommended adult oral dosage is 150 mg twice a day.

GERD: The current recommended adult oral dosage is 150 mg twice a day.

Dosage Adjustment for Patients with Impaired Renal Function: On the basis of experience with a group of subjects with severely impaired renal function treated with ZANTAC, the recommended dosage in patients with a creatinine clearance less than 50 ml/min is 150 mg every 24 hours. Should the patient's condition require, the frequency of dosing may be increased to every 12 hours or even further with caution. Hemodialysis reduces the level of circulating ranitidine. Ideally, the dosage schedule should be adjusted so that the timing of a scheduled dose coincides with the end of hemodialysis.

HOW SUPPLIED: ZANTAC® 300 Tablets (ranitidine hydrochloride equivalent to 300 mg of ranitidine) are yellow, capsule-shaped tablets embossed with "ZANTAC 300" on one side and "Glaxo" on the other. They are available in bottles of 30 (NDC 0173-0393-40) and unit dose packs of 100 tablets (NOC 0173-0393-47).

ZANTAC® 150 Tablets (ranitidine hydrochloride equivalent to 150 mg of ranitidine) are white tablets embossed with "ZANTAC 150" on one side and "Glaxo" on the other. They are available in bottles of 60 tablets (NOC 0173-0344-42) and unit dose packs of 100 tablets (NOC 0173-0344-47).

Store between 15° and 30°C (59° and 86°F) in a dry place. Protect from light. Replace cap securely after each opening.

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Glaxo

Glaxo Inc.
Research Triangle Park, NC 27709

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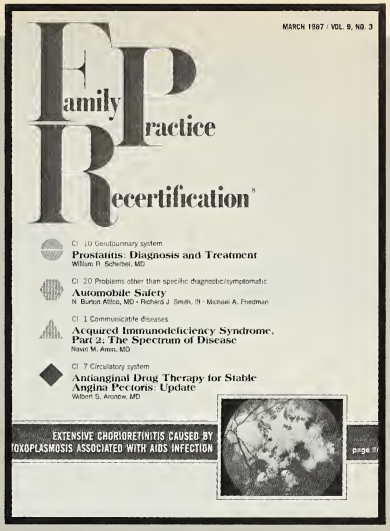
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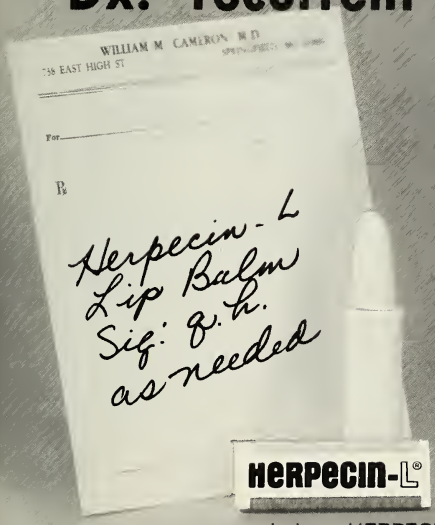
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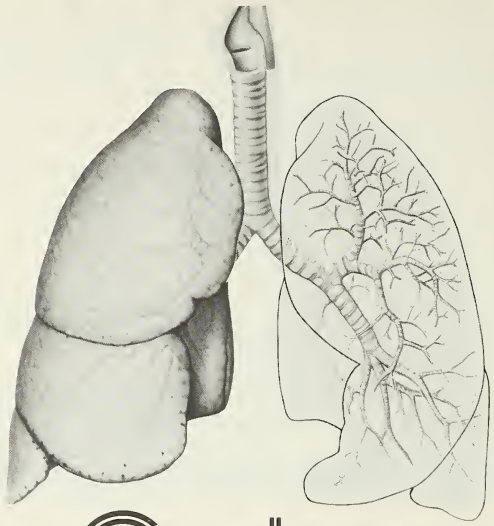
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Summary. Consult the package literature for prescribing information.

Indications: Lower respiratory infections, including pneumonia, caused by susceptible strains of *Streptococcus pneumoniae, Haemophilus influenzae,* and *Streptococcus pyogenes* (group A β-hemolytic streptococci).

Contraindication:
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Warnings:
CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY. POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS.

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:
- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)
Therapy-related adverse reactions are uncommon. Those reported include:
- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever): 1.5%, usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.
- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%, and, rarely, thrombocytopenia.

Abnormalities in laboratory results of uncertain etiology
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Richard M. Caplan, M.D.

CME Notebook



Of Manpower and False Beliefs

THE CRYSTAL BALL I have always used to foretell the future sometimes grows even more equivocal than usual. When I peer into it seeking answers to my questions about medical manpower, it displays the full measure of its talent for opacity.

There is certainly much talk of a doctor "glut," either now or in the near future. I understand that point of view. It's probably so for some specialties and some places, but of course, a glut must be understood as a problem of *maldistribution*. And the stance of the viewer is also crucial — a glut as interpreted by physicians may be perceived totally otherwise by patients, legislatures, or managers of medical enterprises.

The cliché of a medical glut is hard to foretell because, like so much else about medicine today, the changes are rapid and surprising. The federal GEMENAC Commission report of a few years ago sparked a lot of the predictions about glut, but it also drew great criticism for its assumptions, methods, and conclusions. And even today it is obvious that many factors — alterations in the fee-for-service system, corporate (for-profit) management of medical services by industry and medical entrepreneurs, regulation, advertising, financing changes for medical schools and teaching hospitals, and altered attitudes about life-style, parenting, and ethical obligations — all these and more will surely be producing lots of changes in the equation which, when "solved," will reveal the *truth* about a medical glut.

The GEMENAC report, and others of its sort, must be understood as extremely rough measures and predictors, and may enter the historical footnotes as another example of something that didn't prove to be correct. Even modes of thought, expression and behavior that might seem like eternal verities, such as blood pressure measured in millimeters of mercury, are illustrating the ancient wisdom: ". . . and this, too, will pass away." Maybe not soon enough to include you or me, but before long, all who stay active in medical work and who deal with blood pressure will record the pressure in Pascals, or fractions thereof.

Understanding the nature of change and adapting to it has been the task of thoughtful people from the earliest days of our intellectual and social heritage, as well as our biological heritage. Wise persons in all eras have spoken to it. For example, one of the heroes of Sir William Osler was the British physician, Thomas Browne, who wrote in the introduction to his work *Pseudodoxia Epidemica* (Epidemic False Beliefs), published about 1650, ". . . knowledge is made by oblivion, and to purchase a clear and warrantable body of truth, we must forget and part with much we know." (Just ponder how heretical such a notion must have seemed in 1650!) And so it may be about our current notions of medical manpower — what appears to be the case will enter oblivion as we part with what we think we know.

Drug Therapy Review

REYNOLD SPECTOR, M.D., Editor

Buspirone: A New Treatment for Anxiety

BUSPIRONE (BUSPAR® — MEAD JOHNSON), being marketed for the treatment of mild to moderate anxiety, is a member of a new class of nonbenzodiazepine anxiolytic drugs known as azaspirodecanediones. The first nonbenzodiazepine anxiolytic agent introduced in the United States in 30 years, buspirone is a lipophilic heterocyclic compound that bears structural similarities to various drugs that interact with dopamine receptors as either agonists or antagonists. It, however, is structurally dissimilar to drugs that interact with the GABA binding sites.

The benzodiazepines have been the most commonly prescribed drugs for anxiety states because of their efficacy in anxiety disorders, their great safety in monodrug overdoses, and their low level of side effects in the majority of patients. They are available in a number of formulations with different pharmacokinetic profiles that can be selected advantageously for the condition being treated. Unacceptable aspects of their use include (1) Sedation and psychomotor impairment in some patients, especially the elderly, (2) Physical and psychological dependence and abuse, and (3) Interaction with other CNS depressants and alcohol. The principal marketing strategy for buspirone stems from reports of decreased sedation and lethargy.

This information for Iowa physicians is furnished and sponsored by the University of Iowa Hospitals and Clinics.

Pharmacokinetics

Buspirone is readily absorbed with peak plasma concentrations occurring within 1 hour.[1] The elimination half-life of the unchanged drug is 2.5 ± 0.5 hours and 4.8 ± 1.0 hours for its major metabolite 5 OH-buspirone. Less than 1% is excreted unchanged in the urine with the major routes of metabolism being hydroxylation and oxidative dealkylation in the liver. The metabolites are then cleared by the kidney. The effect of liver disease on the clearance of the drug is unknown. Food appears to increase the bioavailability of buspirone by decreasing the first pass metabolism while overall absorption was not markedly affected.

Pharmacology

In contrast to the benzodiazepines, buspirone does not appear to interact directly with the GABA-benzodiazepine receptor.[2] Buspirone does interact with noradrenergic, dopaminergic, and cholinergic systems. It elevates dopamine levels in the striatum indirectly, possibly by acting presynaptically on inhibitory mechanisms of dopamine release and has been shown to inhibit dopamine-mediated stereotypy behavior in animals. It is also a serotonin receptor agonist and increases central noradrenergic activity in the locus ceruleus while levels of acetylcholine in the striatum decrease. Because of its multiple actions in the CNS, it has been proposed by some to act as a "midbrain modulator" in reducing anxiety. Its most striking neurochemical effect appears to be on the dopaminergic system function,

both as an agonist and antagonist, but functioning predominantly as an agonist.[3]

Clinical Use

Buspirone was originally tested for its antipsychotic activity in an open trial of 10 acutely ill schizophrenics.[4] These patients were treated with very high doses (2,400 mg per day); 4 were rated as minimally improved while 6 deteriorated. Five clinical studies have evaluated the efficacy of buspirone in the treatment of anxiety.[3] All have been conducted with outpatients who received a diagnosis of DSM-II or DSM-III generalized anxiety disorder. Each of the studies was double-blind, comparing buspirone to placebo and/or diazepam, chlorazepate, lorazepam, or alprazolam. The results suggest that buspirone is superior to placebo and equal in efficacy to benzodiazepines in the treatment of outpatients with generalized anxiety disorder. In addition, buspirone has been shown in 1 study to cause less lethargy and sedation than alprazolam or lorazepam.[5] In this study, buspirone 15 to 50 mg/day was compared to alprazolam 1.5 to 5 mg/day and lorazepam 3 to 10 mg/day. In terms of efficacy the 3 treatment groups were the same. Drowsiness was reported in 16% of the patients on buspirone, in 45% of those on alprazolam, and in 65% of the patients on lorazepam. Lethargy was reported in 30% of the patients on alprazolam and in 15% of the patients on lorazepam but in none of the patients taking buspirone.

Buspirone is reported to be equipotent to diazepam on an mg per mg basis. There is no data on the use of buspirone in the treatment of other anxiety disorders such as agoraphobia, panic disorder, social phobia, simple phobia, obsessive-compulsive disorder, or posttraumatic stress disorder. In an open-label study, buspirone was also effective in nonmelancholic major depression.[6] Further double-blind studies need to be undertaken to investigate this.

Adverse Effects and Drug Interactions

Buspirone is generally well tolerated. The side-effect profile indicates that the drug displays more side effects than placebo, but less than that of benzodiazepines.[7] Drowsiness (10%), headache (8%), and dizziness (11%) are the most often reported side effects but they occur with less frequency than with benzodiazepines. At doses of 20 mg or less, there is less psychomotor impairment reported than with benzodiazepines. Other reported side effects include gastrointestinal upset (7%) and dysphoria (3%) at doses greater than 30 mg.

The abuse potential of buspirone has been investigated.[8] The subjective effects of a standard dose (10 mg) and a high dose (40 mg) was compared with methaqualone (300 mg) and diazepam (10 and 20 mgs) and placebo in 24 recreational sedative users. Diazepam at 20 mg and methaqualone at 300 mg showed euphoriant effects. Forty mg of buspirone caused sedation and dysphoria and 10 mg of buspirone was rated as no different from placebo in terms of subjective effects to sedative users. On the basis of this and animal studies, it is felt that buspirone will not be a drug of abuse and will not be considered a controlled substance.

There have been few publications on drug interactions with buspirone. A review of 10 clinical studies that compared buspirone with diazepam or chlorazepate and calculated the incidence of side effects in patients taking concomitant medications concluded that there were more adverse reactions in the group taking benzodiazepines than in the group taking buspirone with concomitant medications.[9] Buspirone is highly protein bound; it does not displace other highly bound drugs such as warfarin.

No human data exists concerning the effect of an acute ingestion of high doses of buspirone. Rats have been dosed at 20 mg/kg/day orally and have experienced no adverse effects. Use of buspirone during pregnancy or while breast feeding has not been investigated.

Buspirone's mechanism of action is unknown. It does however alter dopamine receptors. This raises questions about its long-term safety. Since clinical trials at this point have been less than 1 month and there is no experience with patients who increase the dosage of medication on their own, the possibility of inducing extrapyramidal symptoms exists. In a series of 6 stable parkinsonian patients on antiparkinsonian medication who were treated with up to 100 mg per day of buspirone, 4 were felt to be clinically unchanged whereas 2 experienced mild worsening of their parkinsonian symptoms.[10]

(Please turn to page 295)

DOCTOR, Do You Need A Life Insurance Check-up?

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TRUE	FALSE	
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_____	_____	**I can withdraw my cash tax-free without charge.**
_____	_____	**I have maximum protection from my existing policies.**

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The Prouty Company

DRUG THERAPY REVIEW

(Continued from page 293)

Dosage and Administration

The optimal anxiolytic dose appears to be 20 to 30 mg per day in 3 divided doses. The drug is available in 5 and 10 mg dosage units.

Conclusions

In summary, buspirone has been shown to be as clinically effective in the short-term treatment of generalized anxiety disorder as benzodiazepines. Preliminary studies suggest it causes less sedation and cognitive impairment than benzodiazepines, both in the presence and absence of other CNS depressants such as alcohol. It does not appear to produce euphoria and therefore it is unlikely to become a drug of abuse. There have been no clinical reports of a withdrawal syndrome in animal or human studies. The efficacy of buspirone in other anxiety disorders such as panic disorder, agoraphobia, or obsessive-compulsive disorder has not been studied. Work done on its possible use in depression is preliminary. Long-term efficacy studies and adverse reactions are yet to be described. Until they are, a conservative approach would dictate that buspirone be used only in those patients who cannot tolerate benzodiazepines because of sedation or cognitive impairment or in those patients with a history of alcohol or sedative/hypnotic abuse. Although buspirone is not currently classified as a Schedule III drug, it should be treated with respect as a second-line medication until more complete testing has been performed. — STEPHEN KRUMMEL, M.D., and ROGER G. KATHOL, M.D., *Departments of Psychiatry and Internal Medicine.*

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April 1987 Morbidity Report

Disease	April 1987 Total	1987 to Date	1986 to Date	Most April Cases Reported From These Counties
Aids	3	11	8	NA
Amebiasis	0	10	14	
Brucellosis	0	2	1	
Chickenpox	1397	5100	4580	Scattered
Campylobacter	22	55	54	Scattered
Cytomegalovirus	2	7	9	Johnson, Scott
Eatons Agent Infection	7	30	4	Scattered
Encephalitis, viral	1	1	2	Johnson
Erythema Infectiosum	304	569	58	Scattered
Gastroenteritis (GIV)	1292	8422	9462	Scattered
Giardiasis	17	81	103	Scattered
Hepatitis, A	9	53	13	Scattered
Hepatitis, B	11	47	28	Scattered
Hepatitis, Non A-B	1	10	7	Decatur
Hepatitis type unspecified	0	2	0	
Herpes Simplex	113	374	381	Scattered
Herpes Zoster	0	1	0	
Histoplasmosis	1	6	8	Polk
Infectious mononucleosis	22	99	104	Scattered
Influenza, lab confirmed	3	66	238	Dubuque, Polk, Winnishiek
Influenza-like illness (URI)	3542	19740	65541	Scattered
Legionellosis	0	5	4	
Malaria	0	0	0	
Meningitis aseptic	3	8	7	Linn, Mahaska, Winnishiek
bacterial	7	25	27	Scattered
meningococcal	0	3	6	
Mumps	69	180	8	Scattered
Pertussis	0	3	5	
Rabies in animals	44	97	47	Scattered
Reye Syndrome	0	0	0	
Rheumatic Fever	0	0	3	
Rubella (German measles)	1	1	0	Polk
Measles	0	0	1	
Salmonellosis	5	37	39	Des Moines, Dubuque, Johnson, Kossuth, Marshall
Shigellosis	1	8	3	Marion
Toxic Shock Syndrome	0	2	3	
Tuberculosis				
total ill	0	8	13	
bact. pos.	0	8	12	
Typhoid Fever	0	0	1	
Venereal diseases:				
Gonorrhea	203	958	1087	Scattered
Chlamydia	259	1108	669	Scattered
Syphilis	1	7	5	Polk

Other Non-Reportable Diseases: Rotavirus — 2, Polk; Scarlet Fever — 1, Franklin; Ureaplasma Urealyticum — 4, Black Hawk, 1, Dubuque, 1, Cerro Gordo, 8, Johnson, 1, Keokuk, 1, Muscatine, 1, Washington; Yersina — 1, Jefferson, 1, Johnson, 1, Polk.

Iowa Department of Public Health

Homemaker-Home Health Aide Service Helps in Elderly Abuse or Neglect

ELDERLY ABUSE AND NEGLECT has only recently begun to receive attention in Iowa and across the nation. Several organizations including the American Medical Association (AMA), the U.S. House of Representatives Select Committee on Aging, the Washington State Medical Association and an Iowa Governor's Task Force on Elder Abuse, have conducted studies on its incidence, cause, treatment and prevention.

The AMA's Council on Scientific Affairs' report "Elder Abuse and Neglect" (JAMA 1987;257:966-971) is an excellent tool for health professionals in identifying and preventing elder abuse. The Governor's Task Force on Elder Abuse report contains recommendations for alleviating the problems of elderly abuse in Iowa. Both reports highlight the important contributions made by Homemaker-Home Health Aide services in providing support services that can prevent or reduce abuse or neglect of the elderly.

A look at several case studies illustrates how physicians can make use of Homemaker-Home Health Aide service alone or with other community services to assist their patients to alleviate or avert potential abuse or neglect:

Case #1: Mr. A., previously an active 72-year-old retired grocer, was ready to be released from the hospital following a cardiovascular accident. He walked unsteadily and only with assistance; his right-side hemiplegia caused difficulty in swallowing and speaking; his judgment was impaired; he needed help in toileting, bathing, eating, dressing and walking. His 70-year-old wife was hypertensive. The sole caregiver for her husband, she was apprehensive but determined to have her husband at home because "it's the right thing to do."

The physician, aware Mrs. A. is easily frustrated and might have difficulty adjusting to this new responsibility and restricted social contacts, asked the hospital social worker to arrange for Homemaker-Home Health Aide service. The aide now goes to the A's home 3 times a week for 3 hours to help Mr. A. bathe, coach him through the range-of-motion exercises prescribed by the hospital physical therapist, encourage him to assume more self-care and walk with him. These activities help Mr. A. in his recovery and Mrs. A. uses these 9 hours each week for other activities, knowing her husband has competent care.

These brief periods of respite give Mr. and Mrs. A. time apart and new experiences. The "time out" reduces the build-up of frustration, anger, resentment and fatigue which could otherwise result in abuse or a denial of care.

Case #2: Mrs. R. was a victim of self-neglect. Always a dependent person, she was devastated by the death of her husband. He had managed the income and made the decisions. Now, at age 76, Mrs. R. retreated into her house. Social contacts were almost nonexistent. Her nutritional status was poor. Because she doesn't drive, she bought only the food she could easily carry home. (This consisted primarily of cold cereal, powdered milk and cookies.) The stove didn't work. She paid her bills by mail, sending cash because she didn't know how to write a check. She was

This information on public health matters is furnished and sponsored by the Iowa Department of Public Health.

easy prey for thieves and scams. Her vision was deteriorating and she couldn't see the soiled spots on her clothing or the dirt in the house. The house was cluttered with old newspapers, trash and empty cereal boxes.

The physician's office nurse became concerned about Mrs. R.'s continuing weight loss and apathy. A neighbor related a story about the itinerant "roofer" who applied black paint to Mrs. R.'s shingles and charged her $1,000.00 for a "new roof."

A series of discussions with Mrs. R. led to her passive acceptance of Homemaker-Home Health Aide service. The agency's case manager visited Mrs. R., assessed her needs and strengths and developed a plan of care. A stove repairman was called in. The Homemaker-Home Health Aide visited daily for several weeks to prepare a hot meal and do laundry and housecleaning. Eventually Mrs. R. was persuaded by a neighbor, at the suggestion of the case manager, to try the Congregate Meals program. Accompanied by the neighbor and encouraged by the Aide, Mrs. R. agreed to ride the senior citizen bus, "but just this once, and I won't stay for the singing." At first she just went for the meal and then walked home. Gradually, she joined in the singing, next the Bingo and finally, the dancing.

The Homemaker-Home Health Aide case manager secured a high intensity light and large print books from the Commission for the Blind and encouraged Mrs. R. to resume a once-favorite pastime of reading.

The aide taught Mrs. R. how to write checks and convinced her not to keep large amounts of cash in her purse. The bank arranged for direct deposit of her income checks and agreed to help with her financial activities.

The physician and his office nurse were pleasantly surprised when, at her next visit, Mrs. R. had regained much of the lost weight and also much of the vivacity she had formerly displayed. She was proud of her new accomplishments and vocal in her praise of the aide, who now visits only once every 2 weeks to help with the cleaning.

Case #3: Mrs. J., a 50-year-old low functioning female psychiatric patient lives with her alcoholic husband. He is financially responsible for her needs. The husband refuses to acknowledge the importance of ongoing mental health treatment and the necessity of medications for her hypertension and mental instability.

A Homemaker-Home Health Aide, visiting twice a week, helps Mrs. J. stay neat and clean, encourages involvement in church and community activities, drives Mrs. J. to mental health appointments and monitors medications to assure an adequate supply (often returning the husband's empty beer cans to get money for weekly prescriptions.)

Case #4: Mr. C., an 80-year-old man living alone in a rural home, was experiencing problems because of difficulty in ambulation, neglect of housekeeping and nutrition and a history of being financially exploited by people he had hired to help him with transportation, home repair and buying groceries. An investigation by the Department of Human Services and the Public Health Nurse revealed Mr. C.'s skin was encrusted with dirt, he was incontinent of urine and his living conditions were unsafe and unsanitary. He was unable to bathe because the shower was in the basement, too far for him to walk. An old hip fracture impeded his ambulation, but a weakness for alcohol and poor eating habits were more proximate causes of his problems.

Mr. C. was persuaded to move into senior housing in the nearby small town where he had many acquaintances. He is being safely maintained with 3 times a week visits from a Homemaker-Home Health Aide who helps him bathe, is teaching him to perform day-to-day housekeeping tasks and has gained his trust. He has received needed medical attention and follows his doctor's instructions. Mr. C. delights in visiting with his friends. His improved health and outlook on life allow him to walk daily to the senior citizen meal site, 2 blocks away.

Case #5: Mrs. X., who has MS, is bedridden or in a wheelchair all the time and cared for by her husband. The Homemaker-Home Health Aide has worked with Mrs. X. for several years on personal care and good nutrition. Over a period of time, the aide noted many bruises on Mrs. X.'s arms which her husband attributed to banging against the edge of the counter when he took her to the bathroom. Mr. X. refused to get his wife's prescriptions refilled, agreeing only when the agency threatened to call the doctor. On one occasion last

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IOWA DEPARTMENT OF PUBLIC HEALTH

(Continued from page 297)

summer, Mrs. X. had a large bump on her head and, after discreet questioning, she admitted to the aide her husband hit her. The agency notified the Department of Human Services, but abuse could not be founded because Mrs. X. denied to the investigator her husband had hit her. Mr. X. refused to have that aide return, but agreed to allowing another aide. The aide and the public health nurse have noted a lessening of bruising and a steady supply of medication and attribute Mr. X.'s change in attitude to the "shock value" of having his mistreatment recognized and knowing his actions are monitored.

These 5 cases are "success stories." Abuse and neglect are being controlled by the intervention of the Homemaker-Home Health Aide service. Not all cases go so well. For some people, institutional placement with 24-hour care is the best treatment. For others who refuse help, life is isolation, poor nutrition and lack of medical attention. Physicians, social workers, nurses and Homemaker-Home Health Aides cannot solve all the woes, but for those who accept help, the quality of life is greatly enhanced.

Homemaker-Home Health Aide service is available across Iowa, and is offered in every county by at least one agency funded by the Iowa Department of Public Health. Last year these agencies served 18,485 elderly persons; 664 of these clients met the criteria of "Dependent Adult Protective." Services given under this category may be available at no cost to the client if certain criteria are met. The criteria include: reports of abuse or neglect which are founded by Department of Human Services or where concerns may be involved (Mrs. X.); inability to cope with the cumulative impact of personal and social forces in appropriate ways, i.e. marital discord, financial stress (Mr. and Mrs. A.); environmental concerns, i.e. rodents, safety, concerns with falls, burns, food poisoning (Mrs. R.); diagnosis of psychological disorder or substance abuse (Mr. and Mrs. J.); decrease of the elderly person's mental or physical abilities to function independently in their own environment (Mr. C.).

Physicians often feel frustrated when faced with these patients. The *JAMA* article cited earlier presents excellent information on recognizing abuse and neglect in elderly patients and on some ways the community can gather resources to assist and support these victims.

For further information about Homemaker-Home Health Aide services, contact the agency in your community or the Homemaker-Home Health Aide Bureau, Iowa Department of Public Health, at (515)281-3104 or (515)281-6535.

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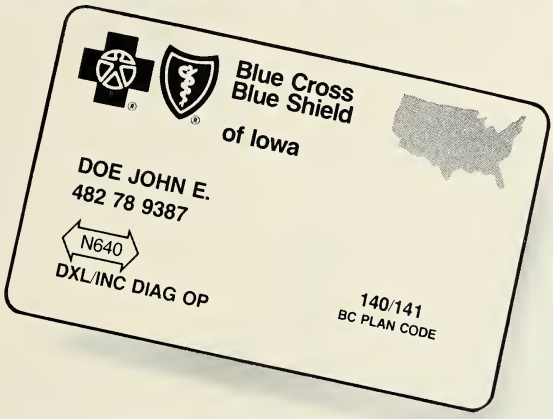
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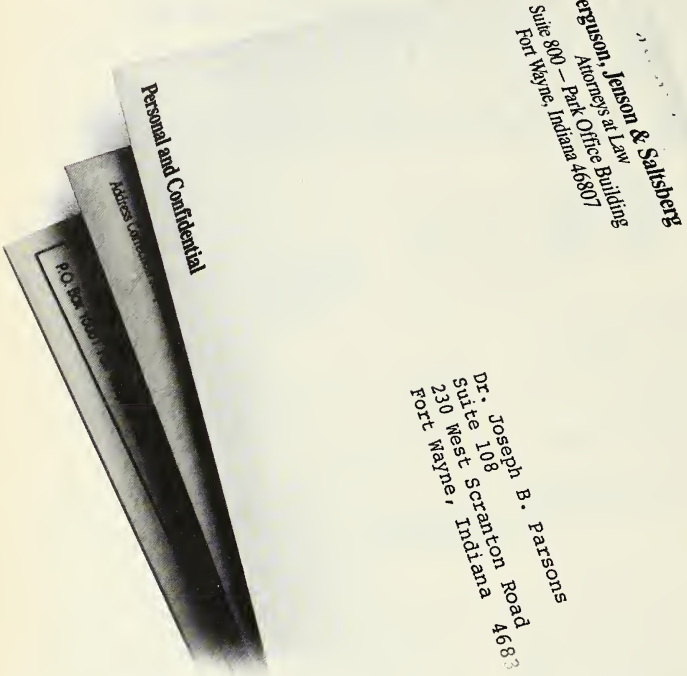
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Medical News/Products and Programs

GRAPE FLAVOR PRESCRIPTION — Septra® Grape Suspension (trimethoprim and sulfamethoxazole) has been introduced by Burroughs Wellcome Co. as a new liquid dosage form for the treatment of acute otitis media and urinary tract infections in pediatric patients. The new prescription formulation features a grape flavor and fragrance as well as a distinctive purple color. It is the first and only brand of trimethoprim and sulfamethoxazole to be offered with the taste of grape. In addition, Septra® Grape Suspension has a sorbitol base which does not promote tooth decay. Burroughs Wellcome Co. will continue to offer the pink, cherry-flavored Septra® Suspension which was introduced in 1975.

NEW TREATMENT FOR HEAD LICE — Nix® (permethrin 1% creme rinse), a prescription creme rinse developed, manufactured and marketed by Burroughs-Wellcome Co. is a new treatment for head lice. This preparation kills the lice and nits and provide protection against reinfestation for up to 14 days with a single application. Nix is a synthetic version of the insecticide pyrethrin. Safety and effectiveness in children under 2 years has not been established. Caution should be exercised if used during pregnancy and by nursing mothers.

NEW SEDATIVE/ANESTHETIC — Roche (Hoffman-LaRoche Inc.) has announced the availability of a stable, water-soluble benzodiazepine sedative/anesthetic. Versed® (Midazolam Hydrochloride) has application in 3 major areas. Intramuscularly, it is indicated for preoperative sedation and to impair memory of events surrounding surgery. Intravenously, it has 2 indications: for conscious sedation prior to short diagnostic or endoscopic procedures with or without a narcotic; or for induction of general anesthesia, or as a component of balanced anesthesia for short surgical procedures.

Recent Books

Kahn, Eva and Berini, Ruth Y., editors, 1986, *Clinical Genetics Handbook*, National Genetics Foundations Inc., Medical Economics Books, Oradell, New Jersey, $24.95. This handbook presents a concise review of the more common genetic disorders for the primary care physician. This is not a textbook. Information is presented in a brief, often tabular form. Cross references and the index give added value. Introductory chapters on genetics and genetic counseling provides a completeness to this handbook. I recommend this handbook be readily available to all primary care physicians.

Holleb, Arthur I., editor, 1986, *The American Cancer Society Cancer Book*, Doubleday and Co., Inc., New York, New York, $12.95. This book consisting of 650 fact-filled pages is dedicated to all people, everywhere, whose lives have been touched by cancer. Written for non-medical readers the title tells the story.

Caplan, Richard M., editor, 1986, *Exploring the Concept of Mind*, University of Iowa Press, Iowa City, Iowa, $15.95. An interdisciplinary symposium seeking to explore the concept of mind — is mind everything or no such thing. Various scholars discuss such subjects as "how old is the mind?," "the literary imagination," "where is creativity," and "are minds developed or created." This is heavy reading; certainly stimulating to the reader who deserves to dwell on such complex questions.

About Iowa Physicians

Dr. Amir Arbisser, Davenport, has been named medical director of the Davenport Vision Institute. Dr. Arbisser is a medical consultant to the Iowa Braille and Sight Saving School in Vinton, Iowa; member of the clinical faculty at the U. of I. College of Medicine and the Iowa Optometric Board; and member of the Board of Directors of the Iowa Society for the Prevention of Blindness. He is a Fellow and a Diplomate of the American Academy of Ophthalmology and a Fellow of the Iowa Academy of Ophthalmology. . . . **Dr. Roger I. Ceilley,** Des Moines, has been named president-elect of the American Society for Dermatologic Surgery, Inc. Dr. Ceilley formerly served as the group's vice president. . . . **Dr. Norval L. Saxton** has been named medical director at Iowa Lutheran Hospital (ILH) and **Dr. Gerald Loos,** Director, ILH Family Practice Residency Program. Prior to locating in Des Moines, Dr. Saxton was associated with the Lakeview Medical Center in Danville, Illinois and Dr. Loos was a faculty member of the Sioux Falls, South Dakota Family Practice Residency Program. . . . **Dr. Stanton L. Danielson** has been named chief of medical staff at Iowa Lutheran Hospital in Des Moines. Other officers are — Dr. Michael J. Quinn, chief-elect; Dr. David T. Sidney, secretary; and Dr. Marc A. Ewers, treasurer. All are Des Moines physicians. . . . **Dr. Robert T. Melgaard,** Dubuque, recently was named President of the American Group Practice Association. Dr. Melgaard has been involved in the organiza-

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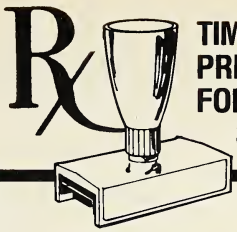
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tion for 16 years and has served as a delegate, trustee, vice president and president-elect.

Dr. Gregg M. Galloway has been named president of Sioux City's Marion Health Center medical staff. Other officers are — **Dr. Dale R. Holiman,** president-elect; and **Dr. Paul A. Fee,** secretary-treasurer. All are Sioux City physicians. **Dr. Edmond E. O'Neill** has been named chief of staff at Mercy Health Center in Dubuque. Other officers are — **Dr. Michael Nelson,** president-elect and **Dr. Jay A. Moeller,** secretary-treasurer. All are Dubuque physicians. **Dr. John H. Gay** was elected president and **Dr. Kenneth P. Schultheis,** president-elect, of the medical staff at Mercy Hospital Medical Center in Des Moines. Both are Des Moines physicians. **Dr. Norman L. Bone** was elected president of the medical staff at Iowa Methodist Medical Center in Des Moines; **Dr. Thomas R. Buroker,** president-elect and **Dr. William G. Bartlett,** secretary-treasurer. All are Des Moines physicians. **Dr. Stanton L. Danielson** has been named chief of medical

(Please turn to page 304)



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staff at Iowa Lutheran Hospital in Des Moines; **Dr. Michael J. Quinn,** chief-elect; **Dr. David T. Sidney,** secretary; and **Dr. Marc A. Ewers,** treasurer. All are Des Moines physicians. **Dr. Joel Nelson** has joined the Burlington Medical Center. Dr. Nelson received the M.D. degree at Indiana University School of Medicine and completed his residency in emergency medicine in Akron, Ohio. **Dr. William W. Eversmann, Jr.** has been named president of medical staff at Mercy Hospital in Cedar Rapids. **Dr. Mary Anne Nelson,** president-elect and **Dr. Ronald R. Gambach,** secretary-treasurer. All are Cedar Rapids physicians.

Dr. John R. Milner-Brage has joined the medical staff at Covenant Medical Center in Waterloo. Dr. Milner-Brage received the M.D. degree at the University of Minnesota School of Medicine and served his internship at University of Minnesota Hospitals. He was in private practice for 10 years prior to completing his residency in physical medicine and rehabilitation at the Medical College of Virginia, Virginia Commonwealth University in Richmond, Virginia.

Deaths

Dr. Philip R. Hastings, 61, Waterloo, died February 20 at Allen Memorial Hospital. Dr. Hastings received the M.D. degree and served his psychiatry residency at the University of Vermont. He began his psychiatry practice in Waterloo in 1959. Dr. Hastings instructed at UNI's Health Services; the Mental Health Institute in Independence and the Waterloo Family Practice Residency Program. He also was medical director for the Northeast Iowa Mental Health Center in Decorah. Dr. Hastings was a past president of the Iowa Psychiatric Society and medical staff at Allen Memorial Hospital. He was a fellow of the American Psychiatric Association and the Academy of Clinical Psychiatry.

Dr. Milford D. Hayden, 65, Cherokee, died February 22 at Sioux Valley Memorial Hospital in Cherokee. Dr. Hayden received the M.D. degree at the U. of I. College of Medicine. He began general practice in Marcus and later moved to Cherokee. Dr. Hayden retired in 1981.



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DISEASES AND SURGERY OF THE COLON AND RECTUM

In the Public Interest

Horse-and-Buggy Doc, 1980's Style

THE YOUNG PHYSICIAN willing to move to a small Iowa town and an unsupported solo practice is almost an extinct species. The practice of medicine has become too complex; the horse-and-buggy town doc has been driven out of existence.

So, how can a rural Iowa community with no hospital hope to attract the one physician it is able to support?

According to Roger Tracy, director of the U. of I. College of Medicine's Office of Community-Based Programs, the answer may be "affiliated practice."

"Affiliated practice is a new, relatively innovative approach for non-hospital rural communities large enough to support a full-time physician," Tracy explains. "It's an approach that's gaining popularity."

The affiliated practice concept brought a family physician to Avoca, a southwest Iowa community listed as a 'shortage area' by Tracy's office. Last July, Luann McStay, M.D., a National Health Service Corp physician, agreed to come to Avoca as part of an affiliated practice called the Nishna Valley Family Physicians.

"Dr. McStay practices in Avoca but she's actually tied into a group with 3 family physicians in Harlan," Tracy comments. "As part of the agreement, she has all the advantages of a small group practice."

In other words, the 3 Harlan physicians agreed to accept rotating responsibility for Avoca so the town could attract the physician it badly needed. The 4 physicians share calls and weekend coverage. This allows for regular days off, vacations and CME leave. In addition, Dr. McStay has access to the Harlan hospital and the specialists based there.

"For personal and professional reasons, our office won't place anyone out there alone," says Tracy. "We were able to help Avoca obtain medical services, but only as part of a larger family practice opportunity. The physician must be fully-integrated into a family practice group nearby."

Tracy says the McCrary-Rost Clinic in Lake City is another example of the success of affiliated practices. The clinic, which has 5 family physicians and 2 surgeons, has attracted 2 more family physicians who practice in Rockwell City. A young physician also has a full-time practice in Gowrie as part of the McCrary-Rost group.

"Without the sponsorship and support of physicians in the county seat communities, affiliated practice wouldn't work," states Tracy.

Tracy, whose office has the role of "planning and facilitating" physician recruitment, says the affiliated practice shows great promise.

"Iowa has 956 municipalities, only 288 of which have physicians. This is the best way a rural community can get back to a time when every town had a town doctor."

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Before The Summer Is Over

The President's page is supposed to deal with important and urgent matters that may influence our practices and our lives. My message for this month may not seem to fit the supposition, but I think it's appropriate.

The July Iowa Medicine is traditionally devoted to full coverage of the IMS House of Delegates proceedings. In this issue you will find an accounting of the annual meeting which is the privotal point of the IMS year. The 1987 House of Delegates was successful because of hard work by many dedicated Iowa physicians. Organized medicine and the citizens of Iowa benefit from the efforts of these physicians. This brings me to my message.

I gleaned this philosophy from my favorite advisor, Ann Landers. Some time ago, she ran an essay titled "The Station." The theme of the essay is we all put off doing things we really want to do because of something that seems more important right now. Here's a shortened version of "The Station," by Robert Hastings.

We see ourselves on a long trip that almost spans the continent. But uppermost in our minds is the final destination. So many wishes will be fulfilled and so many pieces of our lives finally will be neatly fitted together.

Sooner or later we must realize there is no one station, no one place to arrive at once and for all. The true joy of life is the trip. So stop pacing the aisles and counting the miles. Instead . . .

Climb more mountains
eat more ice cream
go barefoot oftener
swim more rivers
fish more lakes
watch more sunsets
laugh more, cry less
sing more songs

Life must be lived as we go along. The station will come soon enough.

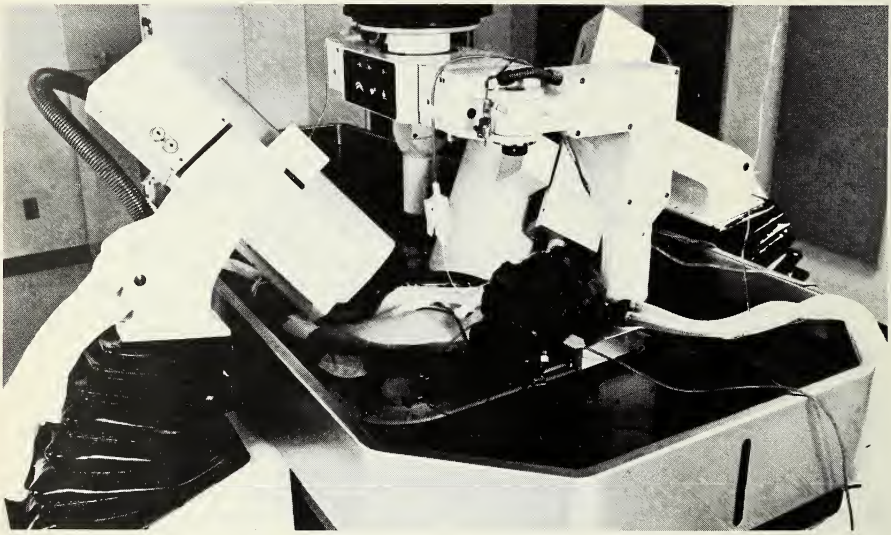
I think that's the way we ought to do it. So, before the summer is over let's get to the real business at hand — climb more mountains, eat more ice cream. . . .

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Retiring President Recaps Goals

L. DEAN CARAWAY, M.D.
Amana, Iowa

The past year brought IMS involvement in a number of projects and programs designed to improve health care and health care delivery in Iowa. In his remarks to the 1987 House of Delegates, retiring IMS President L. Dean Caraway, M.D., reemphasized the importance of communication in assuring all Iowans have access to high quality health care.

I'VE BEEN ACTIVE in the Iowa Medical Society for 30 years. This year it has been my privilege to serve as your president. I've stressed communications and hope this has influenced our mode of practice.

One year ago I didn't know what and how much I was getting into. Now I know it's plenty of what and lots of how much. I received a great deal of correspondence from membership — some encouraging and supportive, some critical. I had the encouraging and supportive one framed and filed the rest.

The IMS is fortunate to have consistency in its quality of leadership, both with the physicians and the IMS staff. Leadership includes the officers, an excellent Board of Trustees, the councilors, the AMA delegation and committee members. The 27-member staff of the IMS and its affiliated organizations is headed by Eldon Huston, executive vice president.

Three IMS activities during the past year merit special mention:

IPMIT (Iowa Physicians Mutual Insurance Trust): Much time and effort was expended by members and the staff in the creation of IPMIT. During the past year, the bad news was the withdrawal of AMACO as a primary carrier; the good news is IPMIT continues independently as a provider of professional liability insurance for our members.

LEGISLATIVE AND IMPAC ENDEAVORS: Leadership appreciates Iowa physicians' strong support of the Iowa Medical Political Action Committee, even though we're not quite at the 100% participation level yet. This support is greatly appreciated by those seeking political office.

We are beginning to make inroads in electing people who understand medicine's position on important health care matters. Legislators are also becoming more aware that physicians do not seek strictly self-serving legislation. On the contrary, lawmakers are be-

These comments were presented by Iowa Medical Society President L. Dean Caraway, M.D., on April 4, 1987 at the annual meeting of the IMS House of Delegates. Dr. Caraway concluded his term of office April 5.

RETIRING PRESIDENT RECAPS GOALS

(Continued from page 321)

ginning to recognize our concerns about protecting public health and preserving high quality care for our patients.

COMMUNICATION: I have made a strong effort to emphasize the importance of communication between physicians and their patients, colleagues, legislators and the public.

The IMS and IMS Auxiliary were co-sponsors of a special conference last fall. Communication was the theme. Good advice was given by a public relations consultant, a consumer, a legislator and even a lawyer.

The IMS played a key role in the Prescription Abuse Data Synthesis Project. The project is the first step toward educating physicians and the public about improper drug prescribing and efforts to thwart the diversion of prescription drugs for illicit purposes.

The October issue of IOWA MEDICINE featured special articles on communication between doctor and doctor, doctor and patient, doctor and allied professional; and doctor and legislator.

The bottom line is this: every doctor is a communicator and so is every patient and legislator. We must talk to one another and we must listen to one another. As physicians, we know this is essential in the diagnosis and treatment of disease. The same is true if we, as physicians, are to be successful in gaining support for our positions on health care issues. Our primary objective is assuring the availability of high quality health care at a reasonable cost for all Iowans.

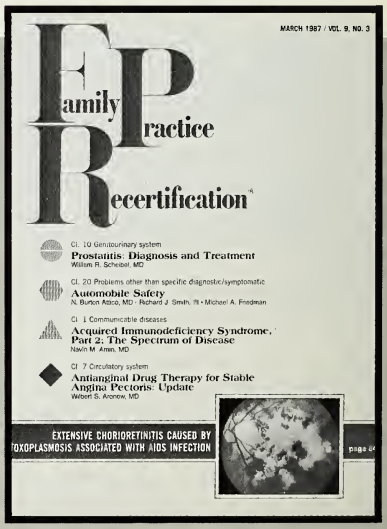
Thank you to all connected with my year as IMS president. I'm sure Dr. Walter, with his experience, will continue our strong leadership.

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A Year For Introspection

DENNIS J. WALTER, M.D.
Des Moines, Iowa

Despite frustrations inherent in today's health care system, Iowa physicians can still appreciate the tremendous opportunity they have to help people. This "back to basics" approach to medicine was the theme stressed by the new IMS president at his April 5 inaugural.

I'M NOT GOING TO PRESENT to you a bold new plan to help solve DRGs, fee freeze and reimbursement problems, the doctor "glut" or the medical malpractice crisis. I want to talk to you about us — doctors, colleagues, friends — but not about how bad things are or how good things were in the "good old days" or about how it's not fun anymore practicing medicine.

I think we're lucky to have the position in society we have. Patients come to us with their problems and their trust. We see patients at their worst, but we also see them at their best. We see courage that is unbelievable and amazing and not seen by many people.

We would claim we are self-made — we worked hard and continue to work hard and we certainly deserve what we have because we did it ourselves. But did we? We have parents and others who supported us financially and, more importantly, emotionally. We have a system that subsidized our education from beginning to end. Do we owe these people and the system something for that?

We have talents and abilities that were God-given. We were the lucky recipients when these were handed out. We have an obligation to develop what we were given to the highest degree. Have we become a bunch of complainers — we don't get paid enough for this or that, our fees are frozen and there are rules about admissions and procedures. How much money is too much and how much is enough? Where is it written that we deserve more than we're getting? I thank God everyday that I don't get what I really deserve. I don't think I could stand it.

Don't misunderstand me. We're in this together. I am proud to be a doctor and to represent you. There are frustrations in our system. But it's still honorable, satisfying and fun to be a doctor and I still feel good when a patient comes in because they want to see me because they trust me and they know I'll help them if I can. They know I'll be honest with them and that I'll love them. They know I'll do this whether Medicare, Medicaid or anybody else only pays fifty cents on the dollar. Osler said, "The practice of medicine is an art, not a trade, a calling, not a business." I believe that.

There is a myth, a misconception, out there that I'd like to mention. It is the one about the AMA and individual physicians. The myth is that everyone hates the AMA but loves their

These remarks were made by Dennis J. Walter, M.D., on April 5, 1987 following his installation as president of the Iowa Medical Society.

A YEAR OF INTROSPECTION

(Continued from page 323)

own doctor. I doubt it. The AMA is not setting fees that seem exorbitant to patients. The AMA is not unavailable to patients when they need a doctor. The AMA is not the one who won't talk to patients when there is an unexpected result — a maloccurrence, if you like that kind of word. I think it's us. Maybe we could take a look inward and try to change what we don't like about what we see there.

So let's become what we really are — doctors. I don't think our patients care if we're sharp politicians or shrewd businessmen. I think they just want us to be doctors who care, and I know we can do that.

Breast Cancer Awareness Program

The American Cancer Society is launching a long-range program to drastically reduce death from breast cancer, which strikes 1 of 10 women — 130,000 predicted in 1987.

The "Breast Cancer Detection Awareness Program," introduced to millions of women in April through distribution of a leaflet encouraging mammography, emphasizes early detection and provides an opportunity to treat over 90% of breast cancer cases successfully.

Results from the Breast Cancer Demonstration Project, jointly sponsored by the National Cancer Institute and the American Cancer Society during the 1970's, continue to demonstrate mammography can find the earliest and most curable breast cancers. The contribution of mammography in the detection of localized breast cancer was demonstrated in all age groups.

Facts, however, indicate only 15% of women over 50 have a mammogram every year although 75% are aware mammography exists. A recent survey of physician practice patterns revealed only 11% of American physicians follow the Society's guidelines for mammography in asymptomatic women. These guidelines recommend a baseline mammogram at age 35-39, a repeat mammogram every 1-2 years until age 50, at which time annual mammography is recommended.

The 3 main obstacles to widespread use of the lifesaving tool of mammography are: cost of the procedure, fear of radiation exposure and lack of knowledge about the effectiveness of the exam in finding nonpalpable breast cancers in asymptomatic women.

In conjunction with the American College of Radiology, the Society is exploring methods to lower the cost of mammography and maintain the high diagnostic quality of the exam. Ways to reduce costs could include providing the procedure during off hours, having the patient prepay or file for insurance benefits and complete her own pertinent medical history.

In this setting, the patient must clearly understand mammography does not substitute for a physical breast exam. A correlative physical exam or other complementary studies such as breast ultrasound may be necessary to complete the evaluation. — Donald C. Young, M.D., Des Moines.

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Summary of 1987 Actions —IMS House of Delegates

On April 4 and 5, physicians representing county medical societies across Iowa attended the 1987 Iowa Medical Society House of Delegates to set IMS policy on crucial health care issues such as alternate delivery systems, peer review organizations and teenage pregnancy. Following is a summary of the 1987 House of Delegates proceedings.

THE 1987 ANNUAL MEETING of the Iowa Medical Society House of Delegates was held April 4-5 in Des Moines. Sessions of the House were chaired by William C. Rosenfeld, M.D., Speaker. Open hearings were conducted by 3 reference committees on April 4. The Annual Banquet occurred April 4 and was chaired by President L. Dean Caraway, M.D.

At the banquet, Hormoz Rassekh, M.D. received the 1987 IMS Merit Award. Dr. Rassekh, a Council Bluffs psychiatrist and past president of the IMS, was honored for his longtime and distinguished service to the Society and the medical profession.

April 4 Session

Registered for the April 4 session of the House were 163 delegates and 12 ex officio members. Minutes of the April 20 Annual Meeting were approved as summarized in the July, 1986 issue of IOWA MEDICINE.

Reports contained in the 1987 HANDBOOK FOR THE HOUSE OF DELEGATES were approved with several exceptions. Reports from the Committee on Articles of Incorporation and Bylaws and the Committee on Unified Membership were referred to the Reference Committee on Reports of Officers and Articles of Incorporation and Bylaws. The report of the Committee on Alternate Delivery Systems was referred to the Reference Committee on Medical Service. Reports from the Committee on Delivery on Health Service, the Committee on Emergency Medical Services and the Committee on Sports Medicine were referred to the Reference Committee on Legislation and Miscellaneous Business.

Supplemental Reports

The following reports were made to the 1987 House of Delegates:

Board of Trustees, by Daniel M. Youngblade, M.D., chairman. Included was a slide presentation on IMS financial status, budget and membership levels. It was noted IOWA MEDICINE received honorable mention in the 1987 Sandoz Pharmaceutical Medical Journalism competition.

Judicial Council, by Robert L. Kent, M.D., chairman. The importance of membership recruitment was stressed.

Necrology, by Robert L. Kent, M.D., chairman, Judicial Council.

Nominating Committee, by K.K. Judiesch,



REPORTING TO HOUSE — Among physicians presenting supplemental reports to the 1987 House of Delegates were (from left): Daniel M. Youngblade, M.D., Board of Trustees report; Hormoz Rassekh, M.D., report of Ad Hoc Committee on Health Policy Agenda; and Dennis J. Walter, M.D., Iowa Physicians Mutual Insurance Trust (IPMIT) report.

M.D., chairman. The 1987 officer slate was read, with no further nominations from the floor.

Committee on Legislation, by Clarence H. Denser, Jr., M.D., chairman. Included was a summary of activities of the Iowa Legislature's Liability and Liability Insurance Commission and the Iowa Alliance for Liability Reform. Member physicians were commended for their grassroots efforts to achieve tort reform. Other issues on the IMS legislative agenda were outlined.

Committee on Alternate Delivery Systems, by Leo A. Milleman, M.D., chairman. A detailed report was given regarding a feasibility study of ADS options available to IMS members.

Ad Hoc Committee on Health Policy Agenda, by Hormoz Rassekh, M.D., chairman. Delegates were updated on work of the Health Policy Agenda, which is in the process of developing a comprehensive framework for health care policy in the U.S.

Iowa Physicians Mutual Insurance Trust (IPMIT), by Dennis J. Walter, M.D., chairman, IPMIT Board of Directors. An overview of IPMIT's progress, organizational developments and financial status was presented.

Iowa Medical Political Action Committee (IMPAC), by Jackson D. VerSteeg, M.D., chairman.

Iowa Medical Foundation, by Daniel M. Youngblade, M.D., president, Foundation Board of Directors.

Blue Shield, by Clarkson L. Kelly, Jr., M.D., chairman, Blue Shield Board of Directors.

Iowa Foundation for Medical Care, by Charles Jons, M.D., president, IFMC.

Two checks from the AMA-Educational and Research Foundation were presented by Dr. Youngblade, chairman, IMS Board of Trustees, to the University of Iowa College of Medicine. One check for $13,601 was an unrestricted grant; the other in the amount of $7,561 was designated for medical student assistance. John W. Eckstein, M.D., dean, U. of I. College of Medicine, accepted the checks on behalf of the University.

Outgoing IMS President L. Dean Caraway, M.D., addressed the House. His remarks are printed elsewhere in this issue.

Twenty-six resolutions were formally introduced and referred to reference committees. Actions taken on these resolutions are reported subsequently.

Life Members

The following physicians were elected to Life Membership in the Iowa Medical Society:

Bernard Diamond, M.D., Dobbs Ferry, New York
Fred Dick, Jr., M.D., Waterloo
Fred R. Sloan, M.D., Waterloo
Thomas L. Trunnell, M.D., Naples, Florida
Ralph L. Wicks, M.D., Okoboji
Paul D. Anneberg, M.D., Carroll
Donald C. Koser, M.D., Cherokee

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SUPPLEMENTAL REPORTS — Additional supplemental reports were presented to the House by (from left) Jackson D. VerSteeg, M.D., report of the Iowa Medical Political Action Committee (IMPAC); Clarkson L. Kelly, Jr., M.D., Blue Shield report; John R. Anderson, M.D. (pictured) and John M. Rhodes, M.D., AMA Delegates' report.

Charles H. Fee, M.D., Tucson, Arizona
Victor K. Nakashima, M.D., Dubuque
Werner P. Pelz, M.D., Prairie Du Chien, Wisconsin
Lois Boulware, M.D., Iowa City
Robert C. Hardin, M.D., Iowa City
Lewis E. January, M.D., Iowa City
Clair M. Kos, M.D., Iowa City
Sebastian Ambery, M.D., Naples, Florida
David Thaler, M.D., Cedar Rapids
Louis J. Noun, M.D., Des Moines
James F. Bishop, M.D., Davenport
Eugene L. Wiemers, M.D., Davenport
John D. Conner, M.D., Nevada
David Wall, M.D., Bella Vista, Arkansas
Sidney Brody, M.D., Dunnellon, Florida
Robert P. Meyers, M.D., Ottumwa

Sixty-two physicians were accorded Associate Membership in the Iowa Medical Society.

The speaker presented information on the reference committee hearings, balloting procedures and the concluding session of the House.

April 5 Session

Registered for the April 5 session of the House were 149 delegates and 10 ex officio members. Minutes of the April 4 session were



NEW LIFE MEMBERS — Among physicians receiving 1987 Life Membership Awards were (from left): Werner P. Pelz, M.D., Charles City; Robert C. Hardin, M.D., Iowa City; Eugene L. Wiemers, M.D., Davenport; Louis J. Noun, M.D., Des Moines; James F. Bishop, M.D., Davenport; David Wall, M.D., Bella Vista, Arkansas; Ralph L. Wicks, M.D., Okoboji.



AWARD WINNERS — Hormoz Rassekh, M.D., Council Bluffs (center) received the IMS 1987 Merit Award at the IMS Annual Banquet Saturday, April 4. Dr. Rassekh received the award in recognition of his distinguished service to the IMS and the medical profession. With Dr. Rassekh are (at left) Michael Reagen, Ph.D., former commissioner of the Iowa Department of Human Services, winner of the Society's John F. Sanford Award; and IMS immediate past-president L. Dean Caraway, M.D., Amana.

read and approved.

Mrs. Jeannine Schultz, immediate past president, IMS Auxiliary, addressed the delegates concerning joint projects and goals of the IMS and the Auxiliary. Mrs. Pat Durham, president, AMA Auxiliary, spoke to the House regarding medicine's changing environment and how auxiliaries and component medical societies can work together to improve it.

Problems related to medical cost containment, DRGs and professional liability insurance were the focus of remarks by William Hotchkiss, M.D., president-elect of the AMA. Dr. Hotchkiss outlined AMA legislative activities on the national level, calling professional liability the "biggest threat to our continued ability to provide high quality medical care to the American people."

The following physicians were announced as having been elected or reelected to the positions noted:

President-elect: **Daniel M. Youngblade, M.D.,** Sioux City

Vice President: **Enfred E. Linder, M.D.,** Ogden

Speaker of the House: **William C. Rosenfeld, M.D.,** Mason City

Vice Speaker: **Donald L. Kahle, M.D.,** Dubuque

Trustee: **R. Bruce Trimble, M.D.,** Mason City

AMA Delegates: **John R. Anderson, M.D.,** Boone; and **Robert D. Whinery, M.D.,** Iowa City

Seven IMS district councilors were affirmed during annual elections:

District II — **Kenneth D. Dolan, M.D.,** Iowa City

District IV — **Albert R. Coates, M.D.,** Cedar Rapids

District V — **Robert T. Melgaard, M.D.,** Dubuque

District VI — **Elias C. Jacobo, M.D.,** Waterloo

District XIII — **Lester Beachy, M.D.,** Des Moines

District IX — **Don C. Green, M.D.,** Des Moines

District XV — **Tom D. Throckmorton, M.D.,** Spencer

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GUEST SPEAKERS — William Hotchkiss, M.D., president-elect of the AMA, addressed the IMS House of Delegates on Sunday, April 5. Dr. Hotchkiss discussed AMA legislative priorities. Mrs. Jeannine Schulze, immediate past president of the IMS Auxiliary, spoke to delegates concerning joint projects and goals of the IMS and IMS Auxiliary.

The speaker complimented the reference committees. Following adjournment of the House of Delegates, Dennis J. Walter, M.D. was installed as president of the IMS for the coming year and addressed the House briefly. His inaugural comments are published elsewhere in this issue. Organizational meetings of the Board of Trustees and the Judicial Council occurred immediately following the installation.

Highlights and actions of the Reference Committee reports are summarized as follows:

Reference Committee on Reports of Officers and Articles of Incorporation and Bylaws — Gene M. Kuehn, M.D., Mason City; Charles M. Helms, M.D., Iowa City; Jerry L. Jochims, M.D., Burlington; James E. Eaves, M.D., Clarinda; and John V. Fernandez, M.D., Council Bluffs.

House Action: Amended Chapter XVIII of IMS Bylaws to remove gender references.





IMS PRESIDENTS — At the Saturday, April 4 Annual Banquet, Emmett B. Mathiasen, M.D., Council Bluffs (at left) received an appreciation plaque for his service as 1985-86 president of the IMS. Dr. Mathiasen is pictured with 1987 Merit Award winner and IMS past president Hormoz Rassekh, M.D., also of Council Bluffs. In the photo above right, immediate past president L. Dean Caraway, M.D., Amana, (at right) congratulates Dennis J. Walter, M.D., following Dr. Walter's installation as 1987-88 IMS president.



REFERENCE COMMITTEE — Members of the Reference Committee on Reports of Officers and Bylaws were (front row, from left) Charles M. Helms, M.D., Iowa City; Gene M. Kuehn, M.D., Mason City, Chairman; Jerry L. Jochims, M.D., Burlington; (back row, from left) John V. Fernandez, M.D., Council Bluffs; and James E. Eaves, M.D., Clarinda.

House Action: Commended the Board of Trustees for maintaining a financially strong organization and overseeing IMS activities and programs.

House Action: Directed the Ad Hoc Committee on Health Policy Agenda to continue study of Health Policy Agenda proposals and make recommendations to the Executive Council and House of Delegates.

House Action: Increased 1988 IMS dues from $300 to $350.

House Action: Endorsed the concept of county/IMS/AMA unified membership. Following a 1-year educational effort, the 1988 House of Delegates will reconsider the issue.

House Action: Asked the Judicial Council to study an exemption to IMS policy on county/state unified membership for active members of the Iowa Osteopathic Medical Association and report to the Executive Council or House of Delegates.

House Action: Directed the Judicial Council to make recommendations regarding a change in the name of the membership category for physicians who retire from practice due to age or infirmity.

Reference Committee on Medical Service — Robert C. Brown, M.D, Iowa City; James W. White, M.D., Dubuque; Clifford L. Rask, M.D., Maquoketa; Ted V. Haas, M.D., Ottumwa; and Cynthia E. Baumgartner, Iowa City.

House Action: Asked the IMS to have alternate delivery systems consultants and lawyers available on a fee basis for members.

House Action: Commended the Committee on Alternate Delivery Systems for responding to a 1986 House of Delegates resolution.

House Action: Called for expansion of the Committee on Alternate Delivery Systems to include an IMS member from each delivery plan in Iowa so the Committee can explore

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networking independent practice associations.

House Action: Requested the Committee on Alternate Delivery Systems to continue gathering and disseminating information on alternate delivery systems activities in Iowa.

House Action: Asked the Committee on Medical Service to (1) do an in-depth study of the IMS/Iowa Foundation for Medical Care (IFMC) relationship and report to the IMS Executive Council by January, 1988; (2) investigate and recommend changes in federal laws, rules and regulations which impact adversely on the practice of medicine; (3) work with the AMA in changing laws which adversely affect physicians; (4) work with IMS representatives to the IFMC Provider Advisory Committee to improve communications.

House Action: Directed the IMS to publicize availability of IMS representatives to the IFMC Provider Advisory Committee.

House Action: Commended IMS representatives to the IFMC Provider Advisory Committee for efforts in assisting Iowa physicians.

House Action: Reaffirmed these policies: (1) Iowa physicians should be reviewed by Iowa physicians; (2) whenever possible, physician review should be done by a physician in the same speciality; (3) only physician reviewers should be permitted to administer third party payor denials.

House Action: Asked for continued monitoring of the AMA/Harvard Relative Value Scale Study and dissemination of information to membership.

House Action: Encouraged IMS members to write Iowa congressmen regarding PRO laws and ask they be changed.



REFERENCE COMMITTEE — Members of the Reference Committee on Medical Service were (front row, from left) Ted V. Haas, M.D., Ottumwa; Cynthia Baumgartner, Iowa City; Clifford L. Rask, M.D., Maquoketa; (back row, from left) James W. White, M.D., Dubuque; Robert C. Brown, M.D., Iowa City, chairman.



REFERENCE COMMITTEE — Members of the Reference Committee on Legislation and Miscellaneous Business were (front row, from left) John B. Dixon, Mason City; William R. Buckley, M.D., Jefferson; William C. Mobley, M.D., Davenport; (back row, from left) Albert R. Coates, M.D.; and Leo J. Plummer, M.D., Des Moines, chairman.

Reference Committee on Legislation and Miscellaneous Business — Leo J. Plummer, M.D., Des Moines; William C. Mobley, M.D., Davenport; John B. Dixon, M.D., Mason City; William R. Buckley, M.D., Jefferson; and Albert R. Coates, M.D., Cedar Rapids.

House Action: Asked the IMS to investigate creating a physician advocacy committee to assist physicians with problems in the health care system.

House Action: Expressed appreciation to William W. Eversmann, Jr., M.D. for his efforts on behalf of Iowa medicine and Iowans.

House Action: Asked the Board of Trustees to study the question of how to maintain the confidentiality of patient records.

House Action: Endorsed the concept of an Iowa Health Data Commission.

House Action: Called for member physicians to become more active in political and legislative activities.

House Action: Approved support for legislation to protect Iowa's groundwater.

House Action: Directed support for the Iowa Board of Medical Examiners in its efforts to assure physician competence.

House Action: Mandated IMS support for a legislative study commission which would consider bills introduced to expand privileges of various health care practitioners.

House Action: Approved support of legislation to address the problem of teenage pregnancy.

House Action: Directed the IMS to gather information on teenage pregnancy for distribution to physicians.

House Action: Approved development of a plan to help physicians become involved in education about and prevention of teenage pregnancy.

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House Action: Asked the Board of Trustees to consider creating an ad hoc committee to address adolescent medicine issues, including teenage pregnancy.

House Action: Directed the IMS work with interested organizations to formulate a policy which would assure all Iowans are adequately vaccinated, that children receive routine examinations by physicians and that vaccines be made available to physicians at the same price as made available to public health clinics.

House Action: Approved a study on the cost and feasibility of developing a family abuse intervention protocol for hospital emergency departments and primary care physicians.

House Action: Asked the IMS to recognize interpersonal and family abuse as an adverse health problem.

House Action: Endorsed a number of safety guidelines for horseback riding activities.

House Action: Encouraged the IMS and the University of Iowa College of Medicine to continue addressing the needs and concerns of the IMS, the College of Medicine and the public.

House Action: Endorsed the concept that the U of I College of Medicine has a role in medical manpower.

House Action: Asked the U of I College of Medicine to continue annual updates on medical manpower developments to the IMS.

House Action: Referred the following questions to the Medico-Legal Committee — (1) The IMS and the Iowa State Bar Association Formulate voluntary guidelines for selection of physicians testifying in malpractice cases to be used by all plaintiff and defense attorneys; (2) The IMS and the Iowa State Bar Association develop a model prescreening process for tort cases; and (3) The IMS establish a standing committee on malpractice liability to help members involved in liability cases.



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JEFFREY K. LARKIN, M.D.

Questions and Answers



A Fresh Perspective

Every year, dedicated physicians from across Iowa take time to participate in the Iowa Medical Society House of Delegates. Why do they wish to be part of this process? The author, a first-time delegate and family physician from Carroll, discusses his reasons and comments on important issues taken up by the 1987 House.

Why did you wish to be a representative to the IMS House of Delegates?

I was tired of hearing complaints from some doctors about the IMS doing nothing to address our concerns and because of pessimism over the future of medical practice. I wanted to find out first hand what the IMS is doing.

Did you have any preconceptions about the Society's governing process which proved to be untrue?

I had the notion the House of Delegates was insensitive to concerns of local medical societies. This is obviously not the case. I was impressed by Dr. Hotchkiss, AMA president-elect, and have a new perspective on what the AMA offers. I have suggested to 4 colleagues who are not IMS members that they join and attend the 1988 House of Delegates. They may develop a new appreciation for the time and effort being spent on issues that concern physicians.

In your opinion, what were the most vital issues addressed by the 1987 House of Delegates?

The most vital issue was the lack of communication between physicians, and legislators, media representatives, the business community, the public and patients.

Most other issues also fall into the category of communication, specifically problems with the Iowa Foundatioin for Medical Care. I believe these problems can and should be solved with give and take on both sides.

Communication is vitally important if we're to achieve any meaningful tort reform. So far, we have stressed communicating with lesiglators and we should strengthen communication with the public. I think legislators perceive our push for tort reform as self-serving and would be more responsive if patients voiced their concerns.

To remain effective, we will probably have to address issues of interest to people other than physicians. We must demonstrate concern for the public's welfare and hope the legislature does the same. We must be sure the legislature understands the importance of keeping doctors in Iowa through a favorable liability climate.

Now that you have seen the IMS governing body in action, give us your thoughts on the effectiveness of the process.

I feel the House of Delegates is a sounding board for complaints and an orderly forum in which these complaints can be addressed individually. It is an effective means of informing physicians what is being done regarding specific issues.

Analyzing Variations in Physician Practice Styles

PAUL L. ROHLF, M.D.
Davenport, Iowa

Techniques for collecting and analyzing data on hospital utilization rates and treatment protocols are becoming more refined. The author discusses what this means for Iowa physicians and how physicians should react to the newly-available data.

FOR YEARS, PHYSICIANS have known utilization rates and treatment protocols vary among physicians and hospitals. This has been a source of concern to physicians when they consider appropriate patient treatment.

Information on variations has been available only on an anecdotal basis within the physician community. However, collection, analysis and reporting techniques for variations have been refined in recent years. Today, variations in physician utilization and practice patterns stand out in bold relief.

These data, once only the subject of intellectual curiosity, are now being used in different ways. The trend is toward disclosure of more health care data to consumers, third party payors and policy makers. Iowa has been a leader with establishment in 1983 of the Iowa Health Data Commission (IHDC) and other initiatives.

The physician community has not taken full advantage of the data and its implications for the future of medical practice. As more data become available (the IHDC has a mandate to publish physician-specific data in 1987), physicians will be asked to publicly justify utilization and treatment patterns. Physicians who cannot defend themselves face an uncertain future as society becomes more intolerant of health care costs which are increasing at over twice the rate of inflation.

In Iowa, data variations in utilization and treatment patterns have been gathered using a technique called small area analysis. This article summarizes these studies. There have been 3 small area analysis studies made public in Iowa. These Servi-Share, Medicare and Medicaid studies analyzed inpatient hospital use.

Servi-Share Study

These studies were conducted under the aegis of the Iowa Voluntary Cost Containment Committee and involved 1980 and 1983 hospital use data. The study was funded by Blue Cross/Blue Shield of Iowa, Blue Cross of Western Iowa and South Dakota, Iowa Medical Society, Iowa Osteopathic Medical Association

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and the Iowa Hospital Association. It was conducted by Servi-Share of Iowa with consultation by John E. Wennberg, M.D. and Thomas Bubolz, Ph.D. The initial 1980 data, by agreement of funding parties, was made available to hospitals but not to Iowa physicians.

The second part of the study — 1983 discharge data — was made available by erratic report in late 1984 and published in early 1985. Parts of each study have appeared in newspaper articles, but as yet there has been little effort to disseminate the information to the medical community. Some physicians have received the information through their medical staff, medical society or specialty society.

Medicare Study

Following publication of the Servi-Share small area analysis report, the Iowa Foundation for Medical Care (IFMC), through a contract with the U.S. Health Care Financing Administration and with the assistance of the Codman Research Group, studied 1980-84 hospital utilization by Medicare patients. This report was released through the IFMC in late 1985 and presented to various specialty societies and hospital staffs. The AMA has contracted with the IFMC for work of this kind in other states. These organizations are available to answer questions about the Medicare and Medicaid studies.

The Medicare report was provided to the IHDC and a report of the commission was published in April, 1986. It is available upon request of physicians through the IHDC

Medicaid Study

The third study, funded by the Iowa Medicaid program, was conducted by the Codman Research Group and the IFMC. These findings are becoming available and are intended for use by physicians and public policy makers to design utilization review programs and other educational efforts.

Methodology

Small area analysis is defined as "analysis of the health care used by the population of a defined hospital service area." The technique of small area analysis was developed by John E. Wennberg, M.D. Summary articles have appeared in the *Scientific American*, *New England Journal of Medicine* and *Health Affairs*. This technique uses statistical methods to adjust for age and sex differences and provide for meaningful use rate comparison. Data are gathered regarding hospital usage for residents of a hospital service area. If a patient who resides in Community X has an appendectomy in a hospital in Community Y, the patient is counted as an appendectomy in Community X.

Small area analysis studies have been conducted in most New England states and Scandinavian countries and have shown similar variations in hospital use and practice patterns.

Education about variations has led to a change in the rate of hospitalization in other areas of the country. Understanding variations in practice patterns has led to discussion, reassessment of practice patterns and change. Dissemination of results of Iowa studies is a positive force for change from within.

Findings

All 3 small area analysis studies showed wide variations in: 1) Hospital use rates (admissions and days per 1000) 2) Expenditures per capita 3) Available hospital resources (full-time equivalents, beds per 1000) 4) Variations in rate of procedure performance 5) Variations in hospital use for medical conditions.

Discussion

As more procedures and medical conditions are analyzed and show variations in hospital use rate, more questions are asked. High use rate analysis requires a search for repeat or multiple operations on the same patient, or separate admissions counting the same patient more than once. When multiple procedures are performed on the same patient, quality concerns are raised. Are the procedures indicated? What about outcome studies? Are patients better served by high or low use practice style?

These questions are probably best dealt with by specialty societies with analysis, discussion and data-gathering. Some findings have been presented as rapidly as possible by the IFMC to specialty societies. The University of Iowa College of Medicine will continue this effort. Physicians should attend these sessions and strongly consider the data's implications.

(Please turn to page 338)

ANALYZING VARIATIONS IN PHYSICIAN PRACTICE STYLES

(Continued from page 337)

Variance in expenditures per capita is of particular interest to third party payors. This should result in more widespread "local community" rating for insurance premiums, causing higher premiums for high use areas. This is also called "regional risk sharing." Dr. John Wennberg discussed this concept in a November, 1982 article in the *New England Journal of Medicine* entitled "Should the Cost of Insurance Reflect the Cost of Use in Local Hospital Markets?"

High hospital capacity tends to be associated with high use rate. A Davenport analysis showed driving hospital use down by careful UR controls has not resulted in hoped-for savings.

Des Moines — Iowa's largest population area — shows a utilization pattern for medical and surgical care which many consider excessive. Cedar Rapids — our second most populous area — is only slightly less excessive in use of hospital services for Medicare enrollees. Because of their large populations, these areas have a significant impact on the system.

Community use rates and patterns have perpetuated themselves. Continued utilization review by local physicians tends to perpetuate local practice style. However, it seems likely external incentives such as HMOs and involvement of health care purchasers can result in a different practice pattern without adversely affecting quality of care. If insurance rates are not adjusted for variant factors, low use rate areas are subsidizing high use areas.

Conclusion

Small area analysis has tremendous potential. Information will improve as data collection is refined. Analysis of variations in practice style and use rates relevant to diagnosis and procedures belong in the hands of physicians. If we ignore the findings rather than analyzing and dealing with variations, outside entities will do it for us. This could mean unfairly rationed care.

Small area analysis lends itself to meaningful outcome studies. The medical community should endorse this concept and seek to ensure its appropriate use. Funding for ongoing small area analysis is an unsolved problem. Prudent third party payors may be interested in the findings on a continuing basis. Partial funding by medical societies and associations might ensure continued physician input.

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6. Iowa Health Data Commission, 601 Locust Street, Suite 330, Des Moines, Iowa 50309, (515) 244-1211.

Physician Volunteers Needed

A number of physician volunteers are needed to assist with the first Iowa Games, scheduled for August 7-9 at Iowa State University.

The Iowa Games are a multi-sport festival of Olympic-style competition for Iowa's amateur athletes of all ages and abilities. Iowa has become one of 36 states organizing state games. Events will include softball, track and field, soccer, wrestling, swimming, tennis, judo and others. Anyone who has resided in Iowa for 30 days or more is eligible to compete. Events for people with disabilities are included as well as exhibition or demonstration sports.

Though primary care physicians are particularly needed, any physician interested in assisting with the Games is urged to contact Mark Broderson, M.D., McFarland Clinic, 515/239-4475; or Lonnie Clark at 515/278-8444.

Revenue for the Games will be generated by private and corporate sponsorship, entry fees, ticket sales and souvenirs. The IMS Board of Trustees has approved a $500 contribution to the Games.



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DOCTOR, Do You Need A Life Insurance Check-up?

Take this quiz to see! Unless you answer true in each case, chances are you need to look at your insurance condition!

TRUE	FALSE	
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Important as it is, you may not be sure of your personal insurance situation. That's where we can help. As insurance administrator for the Iowa Medical Society, we are skilled in helping member physicians review their individual circumstances. We can offer you full analysis of your personal and business insurance status. It's part of our service!

We'll be happy to have you call to arrange a review of your insurance situation. Please ask for Mr. Bernie Lowe and Mr. John Bain. We're at The Prouty Company.

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To show you how many hypertensives stayed on INDERAL® LA (PROPRANOLOL HCl) after a major nationwide trial...




...we had
to find
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60,073 patients (90%) who started on INDERAL® LA stayed on INDERAL LA.[1*]

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Because most patients on INDERAL LA (propranolol HCl) don't even know it's working.
A recent double-blind, placebo-controlled, crossover study in 138 hypertensive patients[2] revealed that INDERAL LA has a side effects profile unsurpassed by atenolol or metoprolol—which shows how well-tolerated once-daily INDERAL LA can be.

Sole therapy or concomitant therapy? Fifty-nine percent of the time, INDERAL LA stood on its own.

The patients in the nationwide compliance trial were no different from yours. Generally when the antihypertensive regimen is complicated, compliance may become a problem. So, the effectiveness of INDERAL LA as once-daily monotherapy is a big plus. Of the remaining hypertensives in the program, 36% were treated merely with the addition of a diuretic to INDERAL LA.

For the noncompliant patients in your practice, INDERAL LA may well be the answer.

Almost 20,000 of the patients in the nationwide compliance trial were identified as having been noncompliant with their previous antihypertensive therapy. Their physicians reported that 88% showed improved compliance when placed on once-daily INDERAL LA.

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Like conventional INDERAL Tablets, INDERAL LA should not be used in the presence of congestive heart failure, sinus bradycardia, cardiogenic shock, heart block greater than first degree, and bronchial asthma

*After a 30-day trial with INDERAL LA, physicians reported that 90% of the patients would remain on INDERAL LA.

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NOW AVAILABLE...
NEW LOW DOSE
INDERAL LA 60 mg
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BRIEF SUMMARY *(FOR FULL PRESCRIBING INFORMATION, SEE PACKAGE CIRCULAR.)*

INDERAL® LA brand of propranolol hydrochloride **(Long Acting Capsules)**

DESCRIPTION. INDERAL LA is formulated to provide a sustained release of propranolol hydrochloride. INDERAL LA is available as 60 mg, 80 mg, 120 mg, and 160 mg capsules.

CLINICAL PHARMACOLOGY. INDERAL is a nonselective, beta-adrenergic receptor-blocking agent possessing no other autonomic nervous system activity. It specifically competes with beta-adrenergic receptor-stimulating agents for available receptor sites. When access to beta-receptor sites is blocked by INDERAL, the chronotropic, inotropic, and vasodilator responses to beta-adrenergic stimulation are decreased proportionately.

INDERAL LA Capsules (60, 80, 120, and 160 mg) release propranolol HCl at a controlled and predictable rate. Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours. When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL Tablets. The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol, resulting from the slower rate of absorption of propranolol. Over a twenty-four (24) hour period, blood levels are fairly constant for about twelve (12) hours then decline exponentially.

INDERAL LA should not be considered a simple mg-for-mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose. When changing to INDERAL LA from conventional propranolol, a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval. In most clinical settings, however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect, INDERAL LA has been repeatedly equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate, systolic pressure and rate pressure product. INDERAL LA can provide effective beta blockade for a 24-hour period.

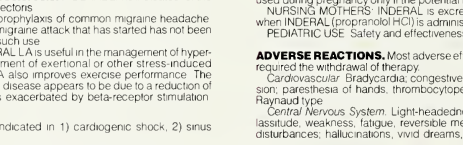
INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension; it may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic. INDERAL LA is not indicated in the management of hypertensive emergencies.

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris.

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache. The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use.

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis, especially for treatment of exertional or other stress-induced angina, palpitations, and syncope. INDERAL LA also improves exercise performance. The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation. Clinical improvement may be temporary.

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock, 2) sinus bradycardia and greater than first-degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL.



WARNINGS. CARDIAC FAILURE: Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely, or INDERAL should be discontinued (gradually, if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following *abrupt* discontinuance of INDERAL therapy. Therefore, when discontinuance of INDERAL is planned, the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

MAJOR SURGERY: The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, eg, dobutamine or isoproterenol. However, such patients may be subject to protracted severe hypotension. Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers.

DIABETES AND HYPOGLYCEMIA: Beta blockers should be used with caution in diabetic patients if a beta-blocking agent is required. Beta blockers may mask tachycardia occurring with hypoglycemia, but other manifestations such as dizziness and sweating may not be significantly affected. Following insulin-induced hypoglycemia, propranolol may cause a delay in the recovery of blood glucose to normal levels.

THYROTOXICOSIS: Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol may change thyroid function tests, increasing T_4 and reverse T_3, and decreasing T_3.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case, this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS. GENERAL: Propranolol should be used with caution in patients with impaired hepatic or renal function. INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies.

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure. Patients should be told that INDERAL may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

CLINICAL LABORATORY TESTS: Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS: Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension.

Caution should be exercised when patients receiving a beta blocker are administered a calcium-channel-blocking drug, especially intravenous verapamil, for both agents may depress myocardial contractility or atrioventricular conduction. On rare occasions, the concomitant intravenous use of a beta blocker and verapamil has resulted in serious adverse reactions, especially in patients with severe cardiomyopathy, congestive heart failure or recent myocardial infarction.

Aluminum hydroxide gel greatly reduces intestinal absorption of propranolol.

Ethanol slows the rate of absorption of propranolol.

Phenytoin, phenobarbitone, and rifampin accelerate propranolol clearance.

Chlorpromazine, when used concomitantly with propranolol, results in increased plasma levels of both drugs.

Antipyrine and *lidocaine* have reduced clearance when used concomitantly with propranolol.

Thyroxine may result in a lower than expected T_3 concentration when used concomitantly with propranolol.

Cimetidine decreases the hepatic metabolism of propranolol, delaying elimination and increasing blood levels.

Theophylline clearance is reduced when used concomitantly with propranolol.

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY: Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

PREGNANCY: Pregnancy Category C. INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose. There are no adequate and well-controlled studies in pregnant women. INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

NURSING MOTHERS: INDERAL is excreted in human milk. Caution should be exercised when INDERAL (propranolol HCl) is administered to a nursing woman.

PEDIATRIC USE: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

Cardiovascular: Bradycardia; congestive heart failure; intensification of AV block; hypotension; paresthesia of hands; thrombocytopenic purpura; arterial insufficiency, usually of the Raynaud type.

Central Nervous System: Light-headedness; mental depression manifested by insomnia, lassitude, weakness, fatigue, reversible mental depression progressing to catatonia, visual disturbances; hallucinations, vivid dreams, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics. For immediate formulations, fatigue, lethargy, and vivid dreams appear dose related.

Gastrointestinal: Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic: Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory: Bronchospasm.

Hematologic: Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Auto-Immune: In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous: Alopecia, LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily. If patients are switched from INDERAL Tablets to INDERAL LA Capsules, care should be taken to assure that the desired therapeutic effect is maintained. INDERAL LA should not be considered a simple mg-for-mg substitute for INDERAL. INDERAL LA has different kinetics and produces lower blood levels. Retitration may be necessary, especially to maintain effectiveness at the end of the 24-hour dosing interval.

HYPERTENSION—*Dosage must be individualized.* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic. The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved. The usual maintenance dosage is 120 to 160 mg once daily. In some instances a dosage of 640 mg may be required. The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks.

ANGINA PECTORIS—*Dosage must be individualized.* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three- to seven-day intervals until optimal response is obtained. Although individual patients may respond at any dosage level, the average optimal dosage appears to be 160 mg once daily. In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established.

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS).

MIGRAINE—*Dosage must be individualized.* The initial oral dose is 80 mg INDERAL LA once daily. The usual effective dose range is 160-240 mg once daily. The dosage may be increased gradually to achieve optimal migraine prophylaxis. If a satisfactory response is not obtained within four to six weeks after reaching the maximal dose, INDERAL LA therapy should be discontinued. It may be advisable to withdraw the drug gradually over a period of several weeks.

HYPERTROPHIC SUBAORTIC STENOSIS—80-160 mg INDERAL LA once daily.

PEDIATRIC DOSAGE—At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use.

*The appearance of these capsules is a registered trademark of Ayerst Laboratories.

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Epidermoid Cyst of the Spleen

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KYUNG-WHAN MIN, M.D.
Des Moines, Iowa

Current literature indicates the true cyst of the spleen arises from heterotopic endodermal inclusions. This article discusses an epidermoid cyst of the spleen which presented as an abdominal mass in a 21-year-old patient.

PRIMARY SPLENIC PATHOLOGY, although uncommon, should be considered in the differential diagnosis of the abdominal mass in the absence of infections or hematologic and lymphoproliferative disorders.[26] The spleen may be the site of origin of a variety of cystic and solid tumors. We report a case of epidermoid cyst with hemangiomata of the spleen, presenting with severe epigastric and left flank pain and with an abdominal mass.

Dr. May is a family practice physician in Des Moines. Dr. Wolf is a general surgeon at Mercy Hospital Medical Center (MHMC) in Des Moines. Drs. Song and Min are pathologists at MHMC. At the time this paper was written, Dr. Nguyen was a resident in pathology at MHMC.

Case Report

A 21-year-old woman was admitted to Mercy Hospital Medical Center, Des Moines, Iowa, on December 1, 1978, for investigation of an abdominal mass.

The patient had previously been hospitalized at another hospital for investigation of severe epigastric and left upper quadrant abdominal pain, which began suddenly on the night of October 4, 1978. It decreased in severity after about 6 hours to an aching feeling not relieved by antacids. She had also complained of intermittent dyspareunia for a period of 6 months prior to the onset of acute symptoms. She had been taking oral contraceptives for 3 years.

On admission to Mercy Hospital Medical Center, physical examination revealed a well-developed, well-nourished woman in no distress. The only abnormal finding was a left upper quadrant mass which extended 6 cm below the left costal margin. The mass was moderately tender but smooth. The liver was not felt. There was also moderate suprapubic tenderness. The pelvic examination was normal.

All hematological and biochemical investigations were normal, including serological tests for infectious mononucleosis, lupus erythematosus, blastomycosis, histoplasmosis, cytomegalovirus and coccidiomycosis. Stool examination for parasites was negative.

An upper gastrointestinal series was normal except for "inferior and medial displacement of the stomach with external pressure due to splenomegaly." The intravenous pyelogram was normal except for "inferior dis-

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR THE MONTH OF JULY 1987

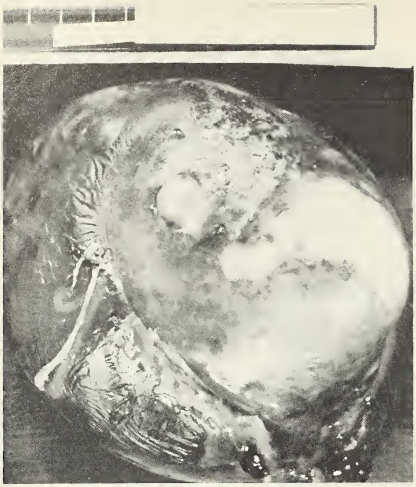


FIGURE 1

placement of the left kidney due to marked splenomegaly." The liver and spleen scan revealed a mild enlargement of the liver and marked enlargement of the spleen, with a large area devoid of activity involving the superior two-thirds of the spleen. A selective mesenteric angiogram revealed enlargement of the spleen with most normal tissue of the spleen displaced downward. The upper portion of the spleen was avasculara and appeared to be cystic in nature. No other pathological changes were noted.

Subsequently, a splenectomy was performed. A cystic structure occupied the entire length of the spleen, with the mass containing 900 cc of apparently old blood. The spleen measures 15 × 11 × 9 cm and weighed 1,350 grams. The specimen consisted of a previously suctioned, large spleen weighing 450 grams and measuring 15 × 11 × 9 cm. There was a fluctuant, uniloculated, fairly round cystic structure, 13 cm in average diameter, occupying four-fifths of the spleen (Fig. 1). The collapsed, normal-appearing splenic tissue was at one pole, measuring up to 3 cm in thickness. The wall gradually tapered down to a fibrous covering at the opposite pole, which was only 0.3 cm in thickness. The cystic lumen contained 50 ml of bloody fluid. There was no hair



FIGURE 2

or sebaceous material in the cyst content or cyst wall. Its wall was whitish-gray and glistening, with markedly coarse trabeculations. There was no satellite cystic space. Also submitted and labeled as "splenic fluid" was 900 ml of greenish fluid, which was suctioned from the described cyst.

Microscopically, the cyst was lined by nonkeratinizing stratified squamous epithelium and a thin, hyalinized fibrous capsule (Fig. 2). In one area the wall was markedly thickened, containing multiple small cystic spaces lined by transitional-to-single-layered cuboidal epithelial cells (Fig. 3), some of which were filled with mucinous material containing frequent cholesterol clefts. Mucicarmine staining on the adjacent sections revealed the presence of muciferous cells lining some microcysts. There were occasional single muciferous cells among the stratified squamous epithelial cells lining the major large cyst (Fig. 4). There were occasional foci of calcification in the cystic wall. External to the cysts were varying-sized cavernous spaces filled with fresh or altered blood. The section from the remainder of the spleen showed no remarkable pathological changes.

The patient's postoperative course was uneventful and she was discharged on the eighth postoperative day. When last seen, 8 weeks postoperatively, she was symptom-free.

Discussion

The gross and microscopic appearance of the splenic cyst reported herein is consistent with a true epidermoid cyst of the spleen.

Splenic cysts are rare, and at least two-thirds are caused by parasites.[8] Parasitic cysts are almost exclusively caused by Echinococcus[8] but are exceedingly rare in this country.[17] Non-

parasitic splenic cysts were classified by Fowler[8] as follows:

I. Primary (with cellular lining):
 1. Congenital
 2. Traumatic
 3. Inflammatory
 (a.) Infoliation cysts
 (b.) Dilatation cysts; lymphangiectatic, polycystic disease
 4. Neoplastic cysts (also congenital)

II. Secondary (no cellular lining):
 1. Traumatic (blood and serous types)
 2. Degenerative (liquefaction)
 3. Inflammatory necrosis, tuberculosis

Martin proposed a modified classification which is more simple, workable, and widely endorsed.[4, 5, 10, 18, 21] This classification is also based on the presence or absence of an intact epithelial lining:

I. Primary (true, with cellular lining):
 A. Parasitic
 B. Nonparasitic

II. Secondary (False, without true cellular lining)

Another classification was also presented by Qureshi and Hafner, which is essentially similar to that of Fowler, except for congenital cysts, comprising serous and transitional cell lined cysts. Talerman observed that the term "epithelial cyst of the spleen" has been more commonly used in the British literature, while the term "epidermoid cyst of the spleen" is preferred in the American literature.[9, 10, 13, 15-17, 20-22, 25, 27]

Approximately 500-600 cases of nonparasitic splenic cysts have been reported in the world literature.[5, 21] Three-fourths are posttraumatic pseudocysts. Among neoplastic cysts, hemangiomas are the most common and dermoid cysts the least.[9, 21] Epidermoid cysts comprise about 10% of all nonparasitic splenic cysts, with over 50 cases of having been reported.[9, 24]

The histogenesis of primary cyst is subject to long and numerous speculations. The most accepted theory is that it is developed from embryonic cellular inclusions.[14, 23] Five possible types of cellular inclusions have been proposed: totipotent, ectodermal, mesothelial, endodermal, and mesonephric.[3, 6, 11, 14-16, 23-24, 27]

Embryologically, the splenic anlage (of mesodermal origin) is formed in the left dorsal

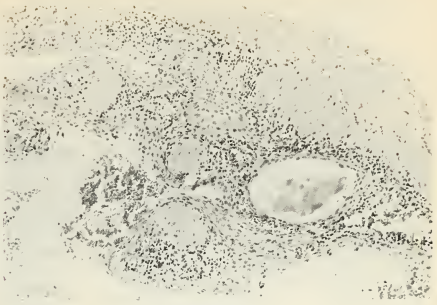


FIGURE 3

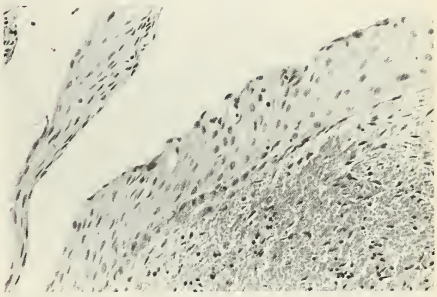


FIGURE 4

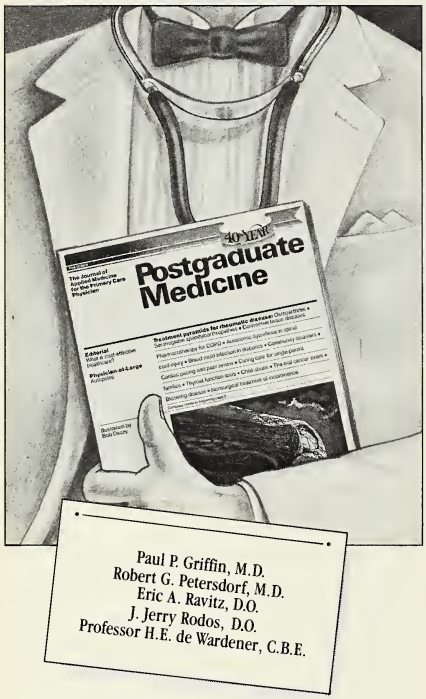
mesogastrium when the embryo is 8 to 10 mm in length.[19] It consists of multiple small masses which normally fuse into one organ. The close relationship of the splenic anlage with the mesonephros and gonadal anlages lead to speculation of the etiology of the splenogonadal fusion.[19] The formation of a splenic cyst with transitional cell lining has also been explained on the same basis.[6]

Although this may be true in a small number of splenic cysts lined by transitional epithelial cells, it is unlikely that such histogenesis would be explained satisfactorily in the majority of epithelial cysts of the spleen. Alternately, the transitional epithelial lining may represent a metaplastic epithelium, since some of these cysts also contain cells having mucin-secreting vacuoles.[6]

Browne and Sloane pointed out the similarity of "dermoid cyst" of the spleen with those in the ovaries and testes and suggested the theory of inclusion of totipotent cells.[3, 24]

(Please turn to page 344)

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EPIDERMOID CYST OF THE SPLEEN

(Continued from page 343)

However, the term "dermoid cyst of the spleen" should be reserved to describe those cysts which contain elements of definite ectodermal origin: hair, sebaceous glands, and keratin.[1, 12] In this regard, there is only a limited number of true dermoid cysts in the literature.[1, 12]

According to Bostick and Lucia, the diagnosis of epidermoid cyst should be based on the presence of stratified squamous epithelium with intercellular bridges.[2] Our case fits this category. Harding proposed that splenic cysts probably arise from heterotopic endodermal inclusions in the spleen, by observing mucin-producing properties of epithelial cells lining the splenic cysts. Willis expressed support of this opinion by pointing out the occurrences of pancreatic tissue in the spleen or its capsule. The pancreatic ducts are well known to be capable of undergoing squamous metaplasia.[27]

The splenic cyst in our case was lined, for the most part, by nonkeratinizing stratified squamous epithelium. There were occasional small cystic spaces lined by mucicarmine-positive cuboidal epithelial cells. The luminal content was also positive for mucicarmine staining. In addition, there were occasional mucin-secreting cells among otherwise typical squamous cells with intercellular bridges. These findings suggested that the cyst was originally lined by mucin-producing epithelium. The stratified squamous or transitional epithelium might represent metaplastic origin, lending further support to the theory of endodermal inclusion originally proposed by Harding and supported by Willis.[11, 27]

Summary

An epidermoid cyst of the spleen, presenting as an abdominal mass, was reported in a 21-year-old woman. The literature review in regard to its pathogenesis and pathologic histology indicates that the true (epithelial) cyst of the spleen arises from heterotopic endodermal inclusions.

References

References noted in this article are available from the authors or from the editors of IOWA MEDICINE.

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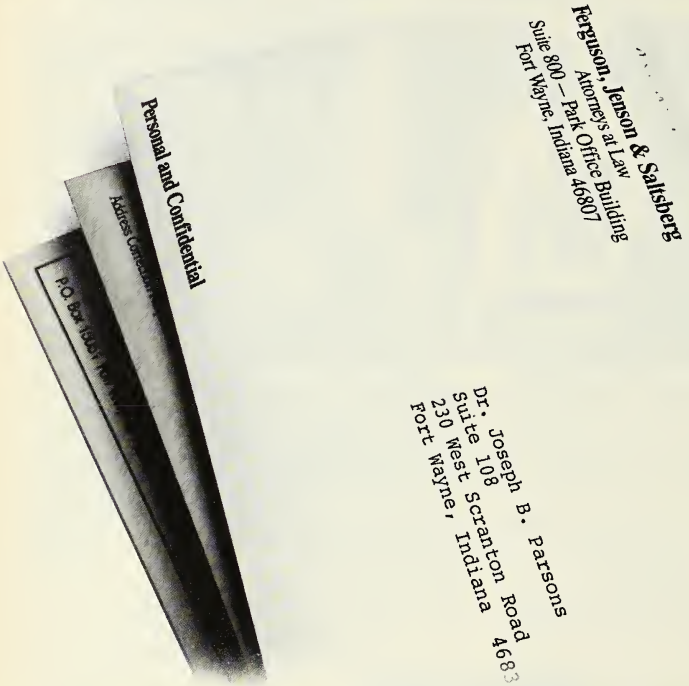
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Marion E. Alberts, M.D.

The Editor Comments



Democracy in Action

IT IS APPROPRIATE the reports of the IMS House of Delegates meeting appear in the July issue of IOWA MEDICINE. The Fourth of July is a day that means much to Americans because it represents independence. This year has further significance; it is the 200th anniversary of the U.S. Constitution. Elderly men and young, 55 strong, met in Philadelphia during the summer of 1787 to debate the intricacies of that monumental document. Franklin, Washington, Hamilton, Mason and Madison and others presented a formidable entourage to represent us, and their wisdom has persisted through 200 years.

The world has changed; our way of life has changed. There are those who believe change represents progress and therefore believe the Constitution is antiquated. Not so, for it stands strong, though some modification has been necessary. A small number of amendments have been made, a very small number when equated against the peculiar whim of politicians who often seem misguided in their efforts. Civil War, labor unrest, presidential high-jinks and unpopular military involvements have not weakened its strength. The amendments were not made lightly. The original Bill of Rights emphasized citizenship and freedom. The Constitution remains resolute over the years preserving the freedoms of Americans, yet emphasizing the responsible citizen has a duty to our country above personal desires. That is democracy in action.

Fortunately, citizenship, democracy and freedom affect our personal and professional lives. This was exemplified at the recent House of Delegates meeting of the Iowa Medical Society. Each individual in our professional society is represented in that decision-making body. Even if an individual did not vote for the delegate, representation remains. Representation denotes strength. Individual members of the component societies provide the total strength of the IMS. We are free to voice our opinions on a local level, and at the state level we may attend Reference Committee hearings to be heard. Any responsible member of our society can and should become involved. There are those who accept this responsibility in a more active manner. They became our representatives to make the final decisions.

"Review the actions of our representation and be reassured their actions are for the benefit of all. Be a part of that democratic process. You too can be involved and be a representative of the Iowa medical profession."

As in our U.S. government, there are true representatives and others who accept the position but do not act. For the most part this is not a problem in our IMS. We have a good Society and those who accept the responsibil-

(Please turn to page 348)

DEMOCRACY IN ACTION

(Continued from page 347)

ity to represent us do it well. Their actions speak well; their efforts are noteworthy. Our strength increases through their judgements.

IOWA MEDICINE salutes the officers and representatives of our Society. The staff members who assist and coordinate their efforts are highly competent. Review the actions of our representation and be reassured their actions are for the benefit of all. Be a part of that democratic process. You too can be involved and be a representative of the Iowa medical profession. You can do that by your professional manner, your relationship with your patients and your community. Our U.S. Constitution has remained strong for 200 years, the Iowa Medical Society for 137 years. — M.E.A.

Recent Books

Altman, Dennis, 1987, *AIDS in the Mind of America*, Anchor Press Paperback, Doubleday and Co. Inc., New York, New York, $8.95. The author, a political scientist, writes of AIDS in a knowledgable fashion concluding with the admonition "What AIDS requires is political will, public education and rational thought, not appeals to fear and hatred."

Kahn, Eva and Berini, Ruth Y., editors, 1986, *Clinical Genetics Handbook*, National Genetics Foundations Inc., Medical Economics Books, Oradell, New Jersey, $24.95. This handbook presents a concise review of the more common genetic disorders for the primary care physician. This is not a textbook. Information is presented in a brief, often tabular form. Cross references and the index give added value. Introductory chapters on genetics and genetic counseling provides a completeness to this handbook. I recommend this handbook be readily available to all primary care physicians.

Sugar, Max, editor, 1986, *The Adolescent in Group and Family Therapy*, 2nd edition, University of Chicago Press, Chicago, Illinois, Paperback, $13.95. A series of papers related to description of specific applications of group or family therapy of the adolescent in a variety of particular situations.

Breo, Dennis L., 1986, *Extraordinary Care*, Chicago Review Press, Chicago, Illinois, $17.95. An extraordinary series of interviews with physicians who cared for some interesting celebrities. As special assignments editor of American Medical News, the author has access to big names and big stories. His writing skills provide an intriguing insight to the medical histories of such persons as Adolph Hitler, Elvis Presley, Barney Clark, and Baby Fae. Call it exposé writing, if you wish, but it is interesting reading.

Smuts, Alice Boardman and Hagen, John W., editors, 1986, *History and Research in Child Development*, Monograph of the Society for Research in Child Development, serial no. 211, vol. 50, nos. 4-5, University of Chicago Press, Chicago, Illinois, Paperback, $14.50. Several papers concerned with the history of family and childhood; also, historical approaches to child development. Included as well is a brief history of the Society for Research in Child Development.

Gold, Mark S., 1987, *The Good News About Depression*, Villard Books, New York, New York. Hard cover, $18.95. Emphasis is placed upon ruling out physical disease before making diagnosis of depression. Doctor Gold looks at depression as a psychobiological mood disorder. He discusses this concept along with methods of self-help and support groups. The book is written primarily for anyone who is depressed or involved with someone who is.

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News from DISTA about a new dosage form of cephalexin

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Indications and Usage: Keflet™ Tablets (cephalexin, Dista) are indicated for the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Respiratory tract infections caused by *Streptococcus pneumoniae* and group A β-hemolytic streptococci (Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. Keflet is generally effective in the eradication of streptococci from the nasopharynx; however, substantial data establishing the efficacy of Keflet in the subsequent prevention of rheumatic fever are not available at present.)

Otitis media due to *S pneumoniae, Haemophilus influenzae,* staphylococci, streptococci, and *Neisseria catarrhalis*

Skin and skin-structure infections caused by staphylococci and/or streptococci

Bone infections caused by staphylococci and/or *Proteus mirabilis*

Genitourinary tract infections, including acute prostatitis, caused by *Escherichia coli, P mirabilis,* and *Klebsiella* sp

Note—Culture and susceptibility tests should be initiated prior to and during therapy. Renal function studies should be performed when indicated.

Contraindication: Keflet is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings: BEFORE CEPHALEXIN THERAPY IS INSTITUTED, CAREFUL INQUIRY SHOULD BE MADE CONCERNING PREVIOUS HYPERSENSITIVITY REACTIONS TO CEPHALOSPORINS AND PENICILLIN. CEPHALOSPORIN C DERIVATIVES SHOULD BE GIVEN CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS.

SERIOUS ACUTE HYPERSENSITIVITY REACTIONS MAY REQUIRE EPINEPHRINE AND OTHER EMERGENCY MEASURES.

There is some clinical and laboratory evidence of partial cross allergenicity of the penicillins and the cephalosporins. Patients have been reported to have had severe reactions (including anaphylaxis) to both drugs.

Any patient who has demonstrated some form of allergy, particularly to drugs, should receive antibiotics cautiously. No exception should be made with regard to Keflet.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics (including macrolides, semisynthetic penicillins, and cephalosporins); therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening.

Treatment with broad-spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis.

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, management should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte, and protein supplementation. When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic-associated pseudomembranous colitis produced by *C difficile.* Other causes of colitis should be ruled out.

Usage in Pregnancy—Safety of this product for use during pregnancy has not been established.

Precautions: *General*—Patients should be followed carefully so that any side effects or unusual manifestations of drug idiosyncrasy may be detected. If an allergic reaction to Keflet occurs, the drug should be discontinued and the patient treated with the usual agents (eg, epinephrine or other pressor amines, antihistamines, or corticosteroids).

Prolonged use of Keflet may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug.

Keflet should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

Indicated surgical procedures should be performed in conjunction with antibiotic therapy.

As a result of administration of Keflet, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinitest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP, Lilly).

Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

Usage in Pregnancy—Pregnancy Category B—The daily oral administration of cephalexin to rats in doses of 250 or 500 mg/kg prior to and during pregnancy, or to rats and mice during the period of organogenesis only, had no adverse effect on fertility, fetal viability, fetal weight, or litter size. Note that the safety of cephalexin during pregnancy in humans has not been established.

Cephalexin showed no enhanced toxicity in weanling and newborn rats as compared with adult animals. Nevertheless, because the studies in humans cannot rule out the possibility of harm, Keflet should be used during pregnancy only if clearly needed.

Nursing Mothers—The excretion of cephalexin in the milk increased up to 4 hours after a 500-mg dose, the drug reached a maximum level of 4 μg/mL, then decreased gradually, and had disappeared 8 hours after administration. Caution should be exercised when Keflet is administered to a nursing woman.

Adverse Reactions: *Gastrointestinal*—Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment. Nausea and vomiting have been reported rarely. The most frequent side effect has been diarrhea. It was very rarely severe enough to warrant cessation of therapy. Dyspepsia and abdominal pain have also occurred. As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.

Hypersensitivity—Allergic reactions in the form of rash, urticaria, angioedema, and, rarely, erythema multiforme, Stevens-Johnson Syndrome, or toxic epidermal necrolysis have been observed. These reactions usually subsided upon discontinuation of the drug. Anaphylaxis has also been reported.

Other reactions have included genital and anal pruritus, genital moniliasis, vaginitis and vaginal discharge, dizziness, fatigue, and headache. Eosinophilia, neutropenia, thrombocytopenia, and slight elevations in SGOT and SGPT have been reported.

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AT-A-GLANCE . . . Pope Moseley and **Robert Fick, Internal Medicine,** were among 10 medical researchers chosen nationally as Clinical Investigator/Physician Scientist awardees by the National Institutes of Health. Moseley presented his findings on drug-induced lung injury; Fick, on cystic fibrosis lung lesions, at the NIH centennial symposium in May. . . . **William J. Lawton, Internal Medicine,** is the new director of the UI/Iowa City Veterans Administration Medical Center Dialysis Program. . . . **Mark L. Armstrong, Internal Medicine,** has been elected as a fellow of the American Association for the Advancement of Science — the leading general scientific organization in the United States, with more than 132,000 members. . . . **David Warner, Anesthesia,** has received the 1987 Parker B. Francis Young Investigator Award from the American Society of Anesthesiologists. . . . Two of four 1987 International Anesthesia Research Society awards went to UI researchers. **Bruce Bollen, Anesthesia,** received one B. B. Sankey prize and **Robert Forbes** and **David Murray, Anesthesia,** received the other prize.

GENETICALLY ALTERED FORMS OF THE VACCINE USED *to immunize millions of children against smallpox in the 1960s and 1970s is being studied as a future possible protective agent against the AIDS virus. So noted the leader of the World Health Organization team that eradicated smallpox worldwide, who recently visited the UI as the College of Medicine's History of Medicine Society lecturer. Dr. Donald Henderson, professor and dean of Epidemiology and International Health at Johns Hopkins University, said development and testing of the modified smallpox vaccine to be used against AIDS and other contagious diseases should begin this fall in animals.*

FIFTY-ONE PERCENT OF UI COLLEGE OF MEDICINE senior students received their first choice in the National Residency Matching Program in May. Eighty-nine percent received one of their top three choices, reported **Associate Dean Carol Aschenbrener, Pathology.** Forty-six of the May College of Medicine graduates will conduct post-graduate training in Iowa — 26 at the UI. More than half — 58 percent — of the graduating class is entering primary care training programs.

UI COLLEGE OF MEDICINE JUNIOR CHRISTOPHER WILLIAMS *is one of 21 academically outstanding minority medical students selected nationally as a 1987 Commonwealth Fund Medical Fellow. Williams' fellowship work will involve the use of patch clamp techniques to investigate the mechanisms of cardiac calcium channels.*

RESULTS OF A UI PILOT STUDY OF NORMAL NON-ABUSED children's interactions with anatomically-correct rag dolls may serve to help courts validate testimony and interviews of children suspected of having been sexually abused. The 144 boys and girls in the UI study, ages 3 through 8, found the life-like dolls no more interesting than other toys, says **Abigail B. Sivan, Pediatrics,** and principal investigator. "The children showed little aggression and displayed no explicit sexual activity in their play with these dolls. This is in direct contrast with observed behavior of sexually-abused children in which both aggressive activity and sexual precocity are seen," she says.

A SIOUX CITY PHYSICIAN HAS RECEIVED THE IOWA INTERNIST OF THE YEAR AWARD. George Spellman, Sr., Internal Medicine, *received the award from the Iowa Clinical Society of Internal Medicine. Spellman was acknowledged for his teaching efforts in behalf of the UI medical college and for his renowned dedication to his patients. He also was recognized for his pioneering efforts in establishing kidney dialysis treatment in Sioux City.*

This report has been compiled by The University of Iowa Health News Service.

Drug Therapy Review

REYNOLD SPECTOR, M.D., Editor

Treatment of Digoxin Toxicity with Digoxin Immune Fab

DIGOXIN IS A troublesome therapeutic agent.[1] It is plagued by pharmacokinetic problems such as wide variability in clearance. There is also a great deal of variability in the pharmacodynamics of digoxin because of biochemical and pathologic factors, such as hypokalemia and thyroid disease. These variabilities create significant clinical problems in selecting an appropriate digoxin dose and in interpreting serum digoxin concentrations (SDC). The efficacy of digoxin in patients with congestive heart failure is limited but currently there are no satisfactory alternative inotropic agents. Digoxin is considered by many the drug of choice for control of ventricular response in patients with atrial fibrillation. Therefore, despite these difficulties with its use, digoxin is still widely used.

Digoxin has a narrow therapeutic index and because of its pharmacokinetic and pharmacodynamic variability often results in toxicity. Much toxicity occurs in patients because of inadvertent iatrogenic overdose, but occasionally patients also ingest an overdose of digoxin intentionally. Both sources of toxicity can result in significant morbidity and mortality.

Digoxin toxicity is difficult to identify because many patients have significant underlying diseases that also are associated with common signs and symptoms of digoxin toxicity. Nausea, anorexia, weakness, mental confusion, ventricular arrhythmias, and heart block syndromes could be either due to toxicity from digoxin or from congestive heart failure. Furthermore, although disappearance of signs and symptoms after digoxin withdrawal is often used as evidence of digoxin toxicity, in reality the disappearance of these signs and symptoms cannot always be attributed to digoxin withdrawal because the underlying disease state receives treatment also.

Serum digoxin concentrations (SDC) are of limited help in digoxin toxicity.[2] The ranges of SDC in groups of patients with and without digoxin toxicity overlap widely. Much of this overlap is due to factors that influence sensitivity to digoxin such as acid-base or electrolyte abnormalities or underlying heart disease. Also, some digoxin immunoassays are cross-reactive with endogenous substances in neonates and patients with renal and hepatic disease. It appears from the literature and our own experience that if a patient has an SDC greater than 3.0 ng/ml and has signs and symptoms consistent with digoxin toxicity, it is quite likely that the patient is in fact intoxicated with digoxin (and unpublished observations).[3] However, the only definitive way to determine whether a patient is digoxin toxic is to discontinue the digoxin, regardless of the SDC, making the SDC of little actual value.

Treatment of Digoxin Toxicity

Treatment modalities in patients with digoxin toxicity can be classified as supportive, active removal, and/or antidotal therapies.[4] Supportive therapy is directed toward the treatment of arrhythmias and correction of acid-base and electrolyte abnormalities.[5] For

This information for Iowa physicians is furnished and sponsored by the University of Iowa Hospitals and Clinics.

example, heart block syndromes are treated with atropine or by pacemaker insertion, and ventricular tachyarrhythmias are treated with lidocaine or phenytoin.[5]

Active removal therapy is directed toward removal of digoxin from the body to shorten the duration of exposure to the drug and hopefully the duration of risk. Hemodialysis and hemoperfusion do not remove significant quantities of digoxin. Multiple doses of activated charcoal can greatly increase the clearance of digoxin in patients with renal failure while producing only a modest (35%) increase in clearance in patients with normal renal function.[6] It is not known whether the routine treatment of digoxin toxic patients with activated charcoal would reduce overall morbidity and mortality.

Digoxin Immune Fab

Antidotal therapy of digoxin toxicity is directed toward immediate counteraction of the effects of digoxin. The development of digoxin-specific Fab antibody fragments (digoxin immune Fab, Digibine®, Burroughs-Wellcome, Co.) is the first true antidotal therapy for digoxin toxicity. When administered intravenously to digoxin (or digitoxin) toxic patients, digoxin immune Fab can reverse all toxic effects of the drug within 2 to 3 hours.[7, 8] Remarkably, this outcome is achieved with little or no toxicity from the digoxin immune Fab, based on limited experience thus far. Digoxin immune Fab was approved by the Food and Drug Administration under the orphan drug program. Under this program, the development of medically important drugs with low commercial viability because of a small market potential is promoted by the FDA. Digoxin immune Fab approval was based on experience in treating only about 150 patients. Therefore, conclusions regarding the overall utility of digoxin immune Fab are necessarily limited.

Antibodies to digoxin are induced in sheep by administering a conjugate of digoxin and a protein carrier (human albumin). Enzymatic cleavage of the harvested antibody with papain results in an Fc fragment and 2 identical monovalent Fab fragments (mol. wt. 50,000), which are isolated and purified. These Fab fragments have specific affinities for digoxin of 10^9-10^{10} M^{-1}. Each mg of the commercially available digoxin immune Fab will bind approximately 15 μg of digoxin in vitro.

Pharmacokinetics

Following intravenous administration, digoxin immune Fab diffuses into interstitial spaces and rapidly binds all free digoxin. Furthermore, avid binding of digoxin by digoxin immune Fab creates a concentration gradient for digoxin from tissue binding sites, including pharmacologically relevant receptors, into the interstitial fluids. This progressive efflux of digoxin out of tissue likely explains the rapid reversal of the pharmacologic and toxicologic effects of digoxin.

Digoxin immune Fab is eliminated primarily in the glomerular filtrate of the kidney. In patients with normal renal function, digoxin immune Fab disappears from the plasma with a half-life of approximately 24 hours.[9] In patients with decreased renal function, clearance of digoxin immune Fab may be slower. It is unknown whether clearance of digoxin immune Fab by nonrenal mechanisms in a patient with renal failure could result in release of free digoxin and recurrence of toxicity.

Clinical Experience

Evidence for the efficacy and toxicity of digoxin immune Fab comes from the uncontrolled series of patients treated in the United States and Europe.[7, 8] Digoxin toxicity has been completely reversed in all patients given adequate doses. Based on historical data from similarly intoxicated patients, this is a remarkable accomplishment in that almost certainly many deaths from digoxin toxicity were averted with no significant adverse effects related to the digoxin immune Fab. There is no experience with the readministration of digoxin immune Fab at some later time to know whether acute hypersensitivity reactions or delayed serum sickness might develop. It has been noted that a few patients have experienced acute reductions in left ventricular performance following digoxin immune Fab. This could be due to reversal of digoxin-induced inotropy or fluid volume changes associated with therapy of the patient's toxicity.

Indications

Based on limited experience, digoxin immune Fab is indicated only in patients with severe, life-threatening digoxin toxicity. This is usually interpreted to include patients with

(Please turn to page 352)

cardiac rhythm disturbances such as complete heart block and hemodynamically compromising atrial and ventricular arrhythmias that do not respond to atropine, lidocaine, or phenytoin. Hyperkalemia is a frequent consequence of severe digoxin toxicity and since there is a relationship between hyperkalemia (> 5.0 mEq/L) and a fatal outcome in digoxin toxicity, these patients should also be considered candidates for digoxin immune Fab therapy.[7] There is inadequate experience with digoxin immune Fab to recommend its routine use in patients with mild signs and symptoms of digoxin toxicity regardless of the SDC.

Administration

Digoxin immune Fab is administered by intravenous infusion over 30 minutes in a dose equimolar to the estimated digoxin ingestion or body load. If cardiac arrest is imminent, some or all of the digoxin immune Fab may be given as a bolus. It is estimated that a 40 mg vial of digoxin immune Fab will adsorb 600 μg of digoxin. If the digoxin toxicity has developed as a consequence of chronic excessive digoxin administration, the body load can be estimated from the SDC as follows:

Body load = SDC (μg/L) × 5.6 L/kg body weight

Thus a 60 kg patient with an SDC of 10 μg/L would have a digoxin body load of 3,360 μg and would require at least 6 vials (240 mg) of digoxin immune Fab. Caution must be exercised in acute overdosage in using the SDC to estimate the body load since the above formula is only valid if distribution of digoxin is complete. However, the resulting overestimation of digoxin body load and higher than necessary dose of digoxin immune Fab is not known to carry significant risk. The manufacturer recommends the use of 20 vials (800 mg) to treat an acute overdosage when the amount ingested is not known.

Monitoring

Following administration of digoxin immune Fab, onset of effect is seen within 30

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UPCOMING CONTINUING MEDICAL EDUCATION OFFERINGS
1987

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SEPTEMBER 16	ORGAN PROCUREMENT
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OCTOBER 7	OB/GYN UPDATE
OCTOBER 21	CANCER UPDATE
NOVEMBER 7	PAIN MANAGEMENT
NOVEMBER 18	EMERGENCY MEDICINE

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minutes and is maximal by 3 to 6 hours.[7, 8] Intensive cardiovascular monitoring should be continued. Serum potassium concentrations should be monitored frequently (hourly). In some patients, hyperkalemia has become hypokalemia within several hours of digoxin immune Fab administration as a result of reversal of the effects of digoxin on Na-K ATPase.[7] SDC measurements are not useful in patients for some time after digoxin immune Fab administration because of interference by the antibodies with immunoassay procedures.[10]

Due to the limited clinical experience with digoxin immune Fab, each pharmacist supplying and each physician administering the drug will be asked by Burroughs-Wellcome Co. to fill out specific data collection forms on each patient treated. This post-marketing surveillance data will be used to provide additional clinical information on the safety and efficacy of digoxin immune Fab.

Availability and Cost

Digoxin immune Fab will initially be in very short supply and selected hospitals will have only 12 vials available. Information on availability can be obtained from Burroughs-Wellcome Co. at 1-800-334-4828. Even after the supply situation improves, many small hospitals may choose not to stock the 20 vials of digoxin immune Fab required for a massive digoxin overdose because of the cost, $150 per vial. It is reported that Burroughs-Wellcome Co. will maintain a liberal return policy as the product reaches its expiration date. The shelf life of digoxin immune Fab is 36 months.

Conclusions

In summary, the treatment of digoxin toxicity consists of supportive care, active removal, and now antidotal therapy. In patients with massive overdosage from digoxin (or digitoxin) or refractory, life-threatening arrhythmias from digoxin, the administration of digoxin immune Fab can be lifesaving. — GLEN D. PARK, *Pharm.D., Division of Clinical/Hospital Pharmacy, College of Pharmacy and* REYNOLD SPECTOR, M.D., *Departments of Internal Medicine and Pharmacology.*

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Iowa Department of Public Health

Refugee Health in Iowa

SINCE 1981 the Iowa Department of Public Health has been responsible for prevention and/or control of health problems among incoming refugees. The Iowa Refugee Health Program within the department helps identify medical problems which are significant to public health or could impede the refugee's economic self-sufficiency. All refugees are sponsored by a local private citizen or group selected by a federally-designated Volunteer Resettlement Agency. One responsibility of the sponsor is to arrange a health assessment with a local physician.

The Iowa Dept. of Public Health and the U.S. Public Health Service recommend the initial health assessment include a skin test for tuberculosis, a stool test for intestinal parasites, a hemoglobin/hematocrit, a serology for hepatitis B, an evaluation for hearing and vision problems and other tests suggested by the history or physical examination.

Refugee Health Profile

Approximately 95% of Iowa's 9,700 refugees are from SE Asia. Since 1981, the Iowa Refugee Health Program has collected data on health assessments of newly arriving refugees. The following health problems are most frequently noted among Southeast Asians:

Tuberculosis is the most prevalent public health problem of refugees. The policy of holding refugees with active tuberculosis in overseas camps until they have completed a short-course chemotherapy regimen has helped reduce Iowa's refugee case rate for active tuberculosis from 195/100,000 in 1982 to 54/100,000 in 1986. (Iowa's 1986 nonrefugee case rate was 1.4/100,000).

The prevalence of tuberculosis infection among new arrivals is approximately 27-38%. The Iowa Department of Public Health recommends all refugees without a record of a skin test be tested by the Mantoux method with 5 TU of PPD intradermally. A reaction of 10 mm or greater induration indicates the need for a chest x-ray to rule out active disease. Since positive reaction from BCG vaccination

"The language problem is one of translation and concept."

cannot be distinguished from natural infection, the tuberculin test should be interpreted without regard to BCG vaccination. If the x-ray rules out active disease, most refugees < 35 years should be considered for prophylactic therapy. Antituberculosis medications are available at no charge from the Iowa Dept. of Public Health Tuberculosis Control Program.

Intestinal parasites have been found in 36-55% of newly arriving refugees. Frequently, refugees have multiple infestations. Hookworm is the most prevalent parasite. Others frequently encountered are *Giardia lambia, Ascaris lumbricoides, Strongyloides stercoralis, Trichuris trichiura* and *Clonorchis sinensis*. Protocols for treatment may be found in "The Medical Letter" January 31, 1986.

Hepatitis B: Approximately 10-19% of refugees from SE Asia test positive for hepatitis B surface antigen (HBsAg). The Immunization Practices Advisory Committee of the Public Health Service lists persons from SE Asia in the "high-risk" category for transmission of hepatitis B virus (HBV). The Centers for Disease Control recommends testing all refugees for HBsAg with emphasis on pregnant women

This information on public health matters is furnished and sponsored by the Iowa Department of Public Health.

and other women of childbearing age due to risk to newborns.

The Iowa Department of Public Health encourages prevention efforts including the use of hepatitis B vaccine among persons in all the high-risk categories and especially newborns of HBsAg positive women. Due to the prevalence of hepatitis B infection among SE Asians, adult refugee contacts to a HBV carrier should be tested for antibody to hepatitis B core antigen before vaccination to determine their immune status. Serologic testing of SE Asian pregnant women, newly arriving refugees and household contacts of refugee HBV carriers may be done on specimens labeled "refugee testing" at no cost by the University Hygienic Laboratory.

Vaccine Preventable Disease: Most refugees begin their immunization series in the camps before their arrival in Iowa. Many need follow-up to complete the series. Records of immunizations given overseas should be in the possession of the refugee or may be obtained from the Iowa Refugee Health Program (telephone 515/281-3506). If no record exists, the immunization series should be started and completed in accordance with recommendations issued by the Immunization Practices Advisory Committee of the Public Health Service and the American Academy of Pediatrics (Red Book). Copies of the current schedule are available from the Iowa Department of Public Health Immunization Program in Des Moines.

Anemia: The prevalence of anemia among Iowa's newly arriving refugees had never been over 8% until 1986 when it climbed to 14%. The reason for the increase is not clear. The anemia may be associated with malnutrition or intestinal parasites. There is also a significant incidence of hereditary anemia such as thalassemia among some SE Asians, especially Laotians and Tai Dam.

Conclusion

An average of 54 new refugees arrive each month in Iowa. Ninety-four percent of the new arrivals will complete the initial health assessment within 1-4 weeks, with 55% needing follow-up medical care. The rates of tuberculosis and hepatitis B infections warrant special medical attention as does the incidence of parasites and inherited anemia. With early testing, diagnosis, treatment and preventive health care, the health problems of Iowans of SE Asian descent can be diminished.

The language problem, lack of understanding of basic health/disease concepts and cultural "shyness" are barriers to health care. Refugees unfamiliar with preventive health care may not keep follow-up appointments or take medication unless they are actively sick. The language problem is one of translation and concept. Interpreters familiar with health care terminology and medical concepts are needed to prevent misunderstanding. The Iowa Refugee Health Program provides interpreter assistance and has developed native language health education materials for refugees. The program's Vietnamese and Laotian staff make home visits to educate newly arriving refugees about health problems and health care "American style."

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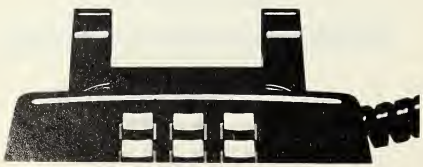
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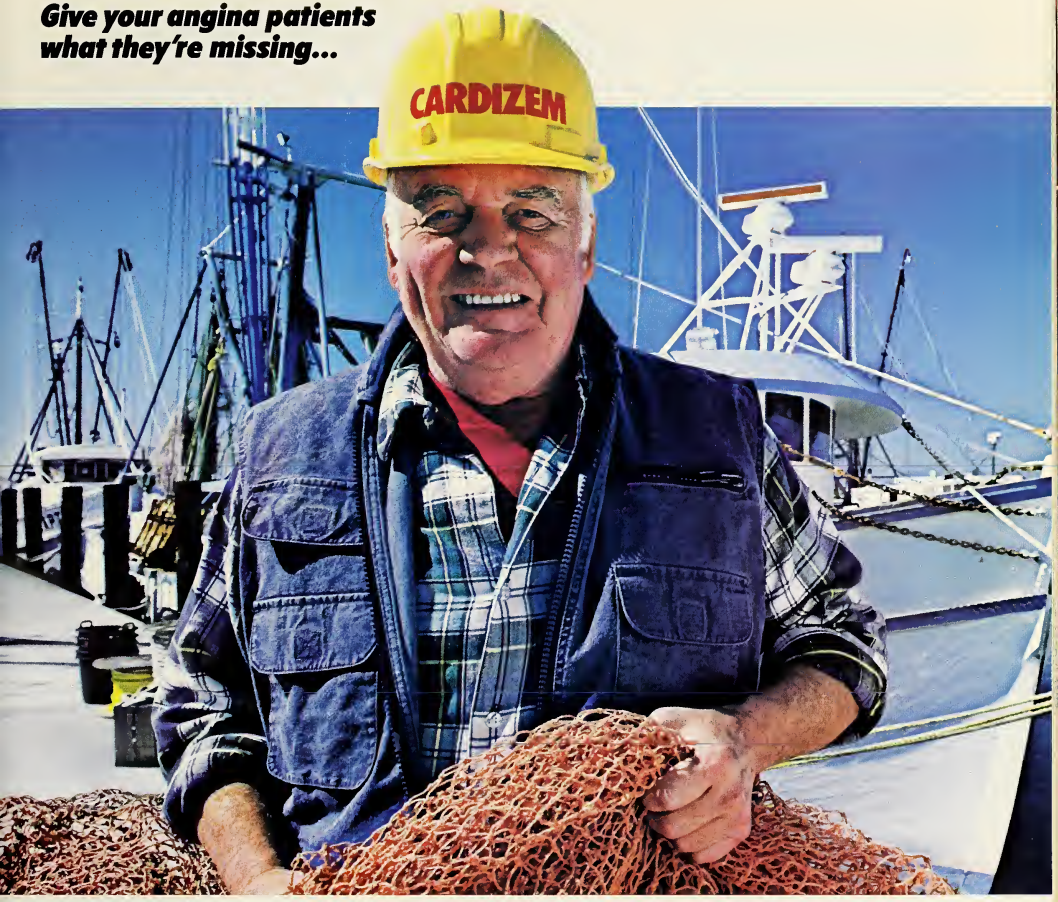


May 1987 Morbidity Report

Disease	May 1987 Total	1987 to Date	1986 to Date	Most May Cases Reported From These Counties
Aids	6	17	8	NA
Amebiasis	4	14	19	Allamakee, Fayette, Jefferson, Linn
Brucellosis	0	2	1	
Chickenpox	11730	6830	6076	Scattered
Campylobacter	40	95	91	Scattered
Cytomegalovirus	1	8	10	Scott
Eatons Agent Infection	3	33	4	Carroll, Cerro Gordo, Winnishiek
Encephalitis, viral	0	1	4	
Erythema Infectiosum	219	788	210	Scattered
Gastroenteritis (GIV)	1631	10053	11062	Scattered
Giardiasis	15	96	127	Scattered
Hepatitis, A	8	61	24	Black Hawk, Polk, Wayne
Hepatitis, B	7	54	39	Black Hawk, Dallas, Marion, Scott, Story
Hepatitis, Non A-B	4	14	10	Black Hawk, Grundy, Pottawattamie, Scott
Hepatitis type unspecified	1	3	0	Black Hawk
Herpes Simplex	130	504	488	Scattered
Herpes Zoster	1	2	0	Keokuk
Histoplasmosis	1	7	10	Warren
Infectious mononucleosis	24	123	140	Scattered
Influenza, lab confirmed	1	67	247	Wayne
Influenza-like illness (URI)	3729	23469	70089	Scattered
Legionellosis	0	5	4	
Malaria	1	2	1	Howard, Scott
Meningitis aseptic	5	13	9	Scattered
bacterial	14	39	38	Scattered
meningococcal	0	3	7	
Mumps	128	308	12	Scattered
Pertussis	3	6	9	Black Hawk, Chickasaw, Worth
Rabies in animals	35	132	74	Scattered
Reye Syndrome	0	0	0	
Rheumatic Fever	2	2	5	Johnson
Rubella (German measles)	0	1	0	
Measles	0	0	1	
Salmonellosis	20	57	52	Scattered
Shigellosis	1	9	4	Polk
Toxic Shock Syndrome	0	2	4	
Tuberculosis total ill	4	12	21	Dubuque, Monroe, Polk
bact. pos.	4	12	19	Dubuque, Monroe, Polk
Typhoid Fever	0	0	1	
Venereal diseases:				
Gonorrhea	271	1229	1488	Scattered
Chlamydia	325	1433	982	Scattered
Syphilis	2	9	5	Polk, Scott

Other Non-Reportable Diseases: Lyme — 1, Clayton; Ureaplasma Urealyticum — 1, Benton; 7, Johnson.

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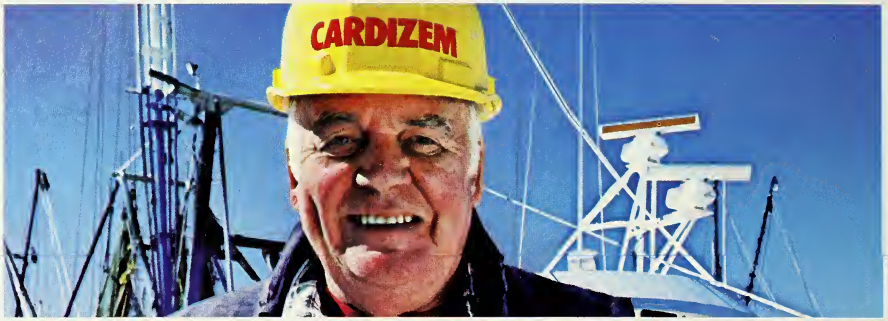
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Brief Summary
Professional Use Information

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CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic).

WARNINGS

1. ***Cardiac Conduction.*** *CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1,243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.*
2. ***Congestive Heart Failure.*** *Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt).*
 Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.
3. ***Hypotension.*** *Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.*
4. ***Acute Hepatic Injury.*** *In rare instances, significant elevations in enzymes such as alkaline phosphatase, CPK, LDH, SGOT, SGPT, and other symptoms consistent with acute hepatic injury have been noted. These reactions have been reversible upon discontinuation of drug therapy. The relationship to CARDIZEM is uncertain in most cases, but probable in some. (See PRECAUTIONS.)*

PRECAUTIONS

General. *CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing.*

Drug Interaction. *Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)*

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. *A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in in vitro bacterial tests. No intrinsic effect on fertility was observed in rats.*

Pregnancy. *Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.*

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. *Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.*

Pediatric Use. *Safety and effectiveness in children have not been established.*

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences as well as their frequency of presentation are: edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%). In addition, the following events were reported infrequently (less than 1%):

Cardiovascular:	*Angina, arrhythmia, AV block (first degree), AV block (second or third degree — see conduction warning), bradycardia, congestive heart failure, flushing, hypotension, palpitations, syncope.*
Nervous System:	*Amnesia, gait abnormality, hallucinations, insomnia, nervousness, paresthesia, personality change, somnolence, tinnitus, tremor.*
Gastrointestinal:	*Anorexia, constipation, diarrhea, dysgeusia, dyspepsia, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase.*
Dermatologic:	*Petechiae, pruritus, photosensitivity, urticaria.*
Other:	*Amblyopia, dyspnea, epistaxis, eye irritation, hyperglycemia, nasal congestion, nocturia, osteoarticular pain, polyuria, sexual difficulties.*

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, gingival hyperplasia, erythema multiforme, and leukopenia. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established.

Issued 7/86

See complete Professional Use Information before prescribing.

References: ***1.*** *Pepine CJ, Feldman RL, Hill JA, et al: Clinical outcome after treatment of rest angina with calcium blockers: Comparative experience during the initial year of therapy with diltiazem, nifedipine, and verapamil. Am Heart J 1983; 106(6):1341-1347.* ***2.*** *Shapiro W: Calcium channel blockers: Actions on the heart and uses in ischemic heart disease. Consultant 1984;24(Dec):150-159.* ***3.*** *Johnstan DL, Lesoway R, Humen DP, et al: Clinical and hemodynamic evaluation of propranolol in combination with verapamil, nifedipine and diltiazem in exertional angina pectoris: A placebo-controlled, double-blind, randomized, crossover study. Am J Cardiol 1985;55:680-687.* ***4.*** *Cohn PF, Braunwald E: Chronic ischemic heart disease. In Braunwald E (ed): Heart Disease: A Textbook of Cardiovascular Medicine, ed 2. Philadelphia, WB Saunders Co, 1984, chap 39.* ***5.*** *Schroeder JS: Calcium and beta blockers in ischemic heart disease: When to use which. Mod Med 1982;50(Sept):94-116.*

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Medical News/Products and Programs

NEW PRESCRIPTION DRUG — Tegison® (etretinate/Roche), has been developed by Hoffmann-La Roche Inc. of Nutley, New Jersey, and will be marketed by Roche Laboratories, the company's pharmaceutical division. Tegison®, a derivative of vitamin A known as a retinoid, is indicated for the treatment of severe recalcitrant psoriasis, including the erythrodermic and generalized pustular types. This new medication should be used only by patients who have been unresponsive to or intolerant of standard treatments for severe psoriasis: topical corticosteroids, oral corticosteroids, exposure to ultraviolet light and methotrexate.

Studies indicate that significant adverse effects can occur with Tegison® therapy. Therefore, Roche recommends special measures be taken with its use, including that Tegison® be prescribed only by physicians knowledgeable in the systemic use of retinoids, and special attention be given to patient selection and monitoring.

In particular, Tegison® is known to cause severe birth defects. It should not be used by females who are pregnant, who intend to become pregnant, or who are unreliable or may not use reliable contraception while undergoing treatment. The period of time during which pregnancy must be avoided after treatment is concluded has not been determined. Other side effects, such as elevation of blood lipids, are potentially serious, as are benign intracranial hypertension and hepatitis.

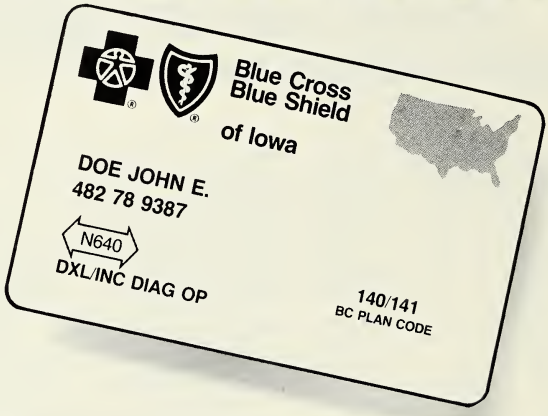
ANSWERS ABOUT AIDS — Heterosexuals who have multiple and/or anonymous sex partners should consider themselves at risk of acquiring AIDS (acquired immune deficiency syndrome), particularly if they live in areas with a high incidence of this disease, warns the report *Answers About AIDS*, published by the American Council on Science and Health (ACSH), an independent scientific organization. To obtain a copy of the report *Answers About AIDS*, send a self-addressed, stamped (66¢ postage), business-size (#10) envelope to AIDS Report, ACSH, 47 Maple Street, Summit, New Jersey 07901.

EASY COOKING FOR LOWER CANCER RISK — *An Ounce of Prevention* has been published as a 4-volume cookbook series, with each spiral bound volume offering recipes for foods most readily available in each season of the year. The recipes provided include a listing of fat and calorie content, as well as preparation time and convenient symbols for costs, entertaining and time needed. The recently published "Fall Volume" now completes the set of Winter, Spring and Summer volumes previously published.

Copies of any of the 4 volumes of *An Ounce of Prevention* are available for a donation of $6 per volume. Volumes may be ordered by writing to the American Institute for Cancer Research, Dept. CB, Washington, D.C. 20069. Be sure to indicate which volume is desired, as well as a complete name and address.

NEW FORM OF INTERFERON — Roferon®-A (Interferon alfa-2a, recombinant/Roche), the Hoffmann-La Roche brand of alpha-interferon, is now available to physicians and pharmacists in a powder form with a refrigerated storage life of up to 3 years. Until now, alpha-interferon has been available only as a liquid with a refrigerated storage life of 1 year. At present, the drug is indicated for the treatment of hairy cell leukemia. Other indications are pending at the U.S. Food and Drug Administration.

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About Iowa Physicians

Dr. Donald W. Schmit was named president of the Black Hawk County Medical Society; **Dr. Arnold E. Delbridge,** president-elect; **Dr. James E. Crouse,** secretary and **Dr. Ankineedu Kavuru,** treasurer. All are Waterloo physicians. **Dr. David L. Reinke** has joined Northwest Surgery, P.C., in Orange City. Dr. Reinke received the M.D. degree at the University of South Dakota School of Medicine and served his surgery residency at Tulsa Medical College, a branch of the University of Oklahoma. **Dr. Kelly S. Bast** has been named president of the medical staff at Charter Community Hospital in Des Moines. Other officers are — **Dr. Lorn Matthews,** president-elect and **Dr. Harvey A. Giller,** secretary-treasurer. All are Des Moines physicians.

Dr. Norman Bone was elected president of the medical staff at Iowa Methodist Medical Center in Des Moines and **Dr. Thomas Buroker,** president-elect. Both are Des Moines physicians. **Dr. Allan S. Manalan** and his wife, **Dr. Diane K. Werth,** have joined Cardiovascular Associates in Sioux City. Both Dr. Manalan and Dr. Werth received their M.D. degrees at Indiana University School of Medicine and completed their internships and residency programs at Indiana Medical center. He is a diplomate, American Board of Internal Medicine; diplomate, Subspecialty of Cardiovascular Diseases and Fellow of the American College of Cardiology. She is a diplomate, American Board of Internal Medicine; diplo-

(Please turn to page 360)

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mate Subspecialty of Cardiovascular Disease and Fellow of the American College of Cardiology. **Dr. Marvin F. Piburn, Jr.,** Waterloo, has been named medical director of the Black Hawk-Grundy Mental Health Center. **Dr. Joseph A. Buckwalter IV,** Iowa City, has been designated an American-British-Canadian Exchange Fellow for 1987. Dr. Buckwalter will join 3 other U.S. orthopedic surgeons for a visit at premier orthopedic centers in England, Scotland, Australia, New Zealand and possibly South Africa. **Dr. William E. Howard,** Des Moines, has been named a Fellow in the American Academy of Pediatrics. **Dr. John E. Sinning, Jr.,** Davenport, presented a program on "Comforting Shoes" at a meeting of the American Academy of Orthopaedic Surgeons in San Francisco.

Dr. Peter Takhar recently began family practice in Marengo. Dr. Takhar received his medical education in India; served residencies in obstetrics and gynecology and internal medicine in England and served his family practice residency in Austin, Texas. Prior to locating in Marengo, Dr. Takhar was in family practice in Texas. **Dr. Thomas L. Coriden,** Sioux City, medical examiner for Woodbury County for 37 years, has resigned from this position. **Dr. Charles Wirtz** plans to begin family practice in Humboldt this summer. Dr. Wirtz received the M.D. degree at the U. of I. College of Medicine. Prior to locating in Humboldt, he was in private practice in Marshfield, Wisconsin.

Dr. Dorothy Reynolds recently began family practice in Nevada. Dr. Reynolds received the M.D. degree at Ohio State University in Columbus, Ohio; interned and completed her family practice residency in Toledo, Ohio. Prior to moving to Ames, Dr. Reynolds was an assistant professor of Family Medicine at Northeastern Ohio University College of Medicine. **Dr. Malcolm Findlater** began family practice in Maquoketa in June. Dr. Findlater received the M.D. degree at the U. of I. College of Med-

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icine and served his internal medicine residency at Hennepin County Medical Center in Minneapolis, Minnesota. **Dr. Curtis W. Rainy** recently was honored for his 32 years of service at Saint Joseph Community Hospital in New Hampton. Dr. Rainy was appointed a life member of the hospital's honorary staff and a plaque denoting his length of service was presented to him.

Dr. Brian W. Nelson has joined Dr. J. Michael Donohue at Iowa Lakes Orthopaedics in Spirit Lake. Dr. Nelson received the M.D. degree and completed his orthopedic surgery residency at the University of Minnesota. **Dr. Christopher A. White** recently began family practice in Norwalk. Dr. White received the M.D. degree at Loyola School of Medicine in Maywood, Illinois and served his family practice residency at Iowa Lutheran Hospital in Des Moines. **Dr. Joung W. Lee,** Keokuk, has been elected a fellow in the American Academy of Pediatrics.

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In the Public Interest

The Most Important Issue

In the most literal sense, this month's In The Public Interest feature lives up to its title.

Today's physician faces a morass of ethical, legal and economic problems. Miraculous progress in diagnosis and treatment methods has spawned issues without precedent in the history of medicine. It is the role of organized medicine to help physicians cope with and adjust to this rapid and bewildering change.

This does not mean, however, either organized medicine or individual physicians have lost sight of the most important issue of all. As IMS President Dennis J. Walter, M.D. pointed out so effectively in his inaugural speech, the physician's uppermost concern is and always will be what is best for the patient and the public.

This concern is clearly demonstrated by a number of resolutions approved by the House of Delegates — the IMS governing body — at its annual meeting in April. These resolutions and actions which will be taken to implement them point up the key role Iowa physicians play in preventing and finding solutions for health problems.

Interpersonal and family abuse is recognized by the IMS as a significant adverse health problem in Iowa. Following a directive from the 1987 House of Delegates, the IMS Committee on Medical Services is investigating development of a family abuse intervention protocol for use by hospital emergency departments and primary care physicians. The protocol would be developed in cooperation with other medical societies, private organizations and government agencies.

Ensuring all Iowa children receive *childhood vaccinations* is the goal of another resolution approved by the physician delegates. The delegates directed the IMS to work with the Iowa Department of Public Health, the Iowa State Association of Counties and other organizations to formulate a policy for recommendation to the state which would assure all Iowans are adequately vaccinated against communicable disease. The policy would also address the issue of ongoing routine physical examinations for children.

The problem of *teenage pregnancy* is also receiving much attention from Iowa physicians. In line with AMA policy, the IMS House of Delegates mandated IMS support for legislation which addresses the problems of teenage pregnancy. The IMS was also directed to accumulate information on teenage pregnancy for distribution to physicians and to develop a plan to help physicians become involved in their communities in education about and prevention of teenage pregnancy. The IMS is considering formulation of a committee to address the unique problems of adolescent medicine.

The House of Delegates approved support for a bill in the Iowa Legislature which will protect *Iowa's groundwater*. Included in the bill is a provision for mandatory reporting by physicians of certain types of chemical poisoning.

Equestrian safety was the subject of another resolution approved at the April meeting. The IMS now endorses guidelines for participation in horseback riding activities, including educational efforts to minimize risk of injury and use of protective headgear.

These and other issues receiving ongoing attention from the IMS House of Delegates prove the public interest is and will remain the most vital consideration for Iowa physicians.

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Another Choice

AN UNBOUNDED ZEST FOR LIFE, an irresistible urge to take a chance, a feeling of infallibility and an overwhelming desire to be your own boss characterize adolescence. These youthful attributes can lead to serious problems with sex and drugs.

This issue of IOWA MEDICINE focuses on the troublesome problem of teenage pregnancy. In addition to statistical/factual information, emotional and psychological aspects are explored. A panel discussion involving a teenage mother, a family physician, social workers and a minister provides insight into how society is dealing with teenage pregnancy. Experts offer opinions on the role Iowa physicians can play in educating teenagers to make informed and intelligent life choices. The IN THE PUBLIC INTEREST column explores AMA and IMS efforts to combat the many problems confronting our youth, including teenage pregnancy.

According to experts, an unprecedented number of teenagers are sexually active. Apparently, many youth make this choice without seriously considering that pregnancy can result. They make this choice without considering the negative impact it can have on their lives.

Contraception, abortion and adoption are not the only choices for teenagers. A decision takes place before these choices have to be made — the decision to say "yes" or "no." I know this seems like an old-fashioned idea, but it's one that seems to be gaining popularity. I feel it's important to let our youth know it's okay to be "square" and say no. It's healthier and happier, too.

In my first president's message several months ago, I discussed Iowa physician's concerns over peer review by the Iowa Foundation for Medical Care. Since that time, several meetings have been held involving IMS and IFMC representatives and progress has been made toward dealing with those concerns.

The IMS Committee on Medical Service plans to hold a series of regional meetings for member physicians regarding the peer review process. The dates and locations are: August 25 — Sioux City, Marian Health Center; August 26 — Council Bluffs; Mercy Hospital; August 27 — Des Moines, IMS headquarters; September 1 — Davenport (location to be announced); and September 2 — Waterloo, Holiday Inn Civic Center. All meetings will be held from 4 p.m. to 7 p.m.

The purpose of these meetings is to gather grassroots input regarding your concerns over the peer review process. I urge you to take advantage of this opportunity by attending the meeting in your area.

D Walter MD

Dennis J. Walter, M.D.
President

Adolescent Pregnancy in Iowa

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Teenage pregnancy is a complex phenomenon with many ramifications for adolescents, their families and society. The authors explore the current situation in Iowa and the impact of childbearing on adolescents' lives. Recommendations regarding how state agencies and other groups can help deal with the problem are also discussed.

ADOLESCENT PREGNANCY is not a new phenomenon in Iowa nor the United States. In the last several years, however, much attention has been directed to it. It is a very complex issue which eludes quick and easy answers. Thirty years ago when an adolescent became pregnant, there were generally 2 choices available — marriage or making the baby available for adoption. Abortion was not a legal option until 1973.

There has been a progressive decrease in live births to Iowa adolescents over the past 10 years. In 1985, there were 1,195 live births to women 15 to 17 years of age, a decrease of 44.3% from 1976. In the 18-19 age group, there were 2,586 live births, a decrease of 35.5% from 1976. For those under 15 years of age, the number of live births has remained relatively constant, with 54 live births in 1985. (Table 1).

In 1976, 45.6% of births to girls 15-17 years old were out-of-wedlock. For the 18-19 year old group giving birth, 21.8% were out-of-wedlock. When 1976 is compared with 1985, the data show a marked increase in out-of-wedlock births for these specific age groups. In 1985, 72% of all live births to women 15-17 years of age were out-of-wedlock; 45% of all live births to women 18-19 years of age were out-of-wedlock and 100% of births to women under 15 were out-of-wedlock.

Data from Minnesota, Nebraska and Kansas reflects similar reductions in live births and a reduction in the number of abortions to women in these age groups.* A review of national data indicates in 1984 the incidence of live births to women under age 20 was the lowest since 1940. The last 3 years of national abortion data reveal a 5% reduction in the number of abortions in this age group.†

The adolescent population has declined in Iowa. According to the U.S. Census, in 1970 there were 221,449 females age 12-19. In 1980, the number increased to 250,775. The 1985 es-

The authors are members of the State Inter-Agency Task Force on Adolescent Pregnancy. Departments and commissions they represent are listed according to the sequence of names above: Departments of Public Health; Human Services; Economic Development; Employment Services; Status of Women; Children, Youth, and Families; and Education.

* Personal communication with registrars of each State.

† Monthly Vital Statistics Report, Vol. 35; Number 4, July, 1986.

TABLE 1

LIVE BIRTHS BY MARITAL STATUS AND SPECIFIC MATERNAL AGE GROUPS
IOWA, 1976-1985

	Age of Mother					
	Age 14 or Under		Ages 15-16-17		Ages 18-19	
	Total	Out-of-Wedlock	Total	Out-of-Wedlock	Total	Out-of-Wedlock
1976	55	48	2,144	997	4,009	872
1977	62	56	2,139	998	4,079	998
1978	59	53	1,878	966	3,982	1,078
1979	46	45	1,740	915	4,112	1,127
1980	53	47	1,756	998	4,149	1,229
1981	41	39	1,523	1,003	3,675	1,218
1982	45	44	1,384	900	3,338	1,177
1983	30	27	1,298	916	2,956	1,148
1984	34	34	1,214	855	2,745	1,159
1985	54	54	1,195	869	2,586	1,168

Source: Vital Statistics
Iowa Department of Public Health

timates from the State Demographer's Office suggest a 20.6% decrease to 210,000.

Since 1970, contraceptive care has become more available and accessible to the general public with family planning public health funding emphasis on sexually-active female adolescents. In 1980, the network of family planning agencies in Iowa served 24,659 female adolescents age 19 or under, which represented 43% of all their patients. Based on the population in 1980, family planning agencies served 1 of 10.16 females age 12-19. In 1985, they served 21,525 adolescents, which represented 31% of their total users. Based on 1985 population estimates, this was actually a slight increase with the agencies serving 1 out of 9.76 female adolescents age 12-19.

It is uncertain what factors are contributing to the decrease in live births and abortion for adolescents, and the increase in contraceptive services for adolescents by family planning agencies. Possibilities include decreased adolescent population, economy, parental involvement in acquiring contraceptives or parental notification concerns. It should be noted adolescent pregnancy cannot be approached as a single issue with a single solution. This article explores the impact of adolescent childbearing, resources available and basic recommendations. The causative factors are multiple and must be addressed in a separate study.

Impact of Adolescent Childbearing

Even though the data suggests the incidence of adolescent childbearing is in a downward trend, the percent of out-of-wedlock births has increased in the last 10 years for adolescents and adults. Too frequently, the adolescent chooses to keep the child. There is substantial concern for the future of adolescents who become parents too soon. There is also concern for their families and society.

Educational Achievement

A study by the National Association of Boards of Education entitled *Female Dropouts: A New Perspective*, revealed in 60% of dropout cases, pregnancy and marriage were not the reasons. It was found pregnancy frequently occurred after girls left school.

When an adolescent female becomes pregnant while attending school, it generally means an interruption, if not the end, of educational achievement. It moves her into a cycle of dependency which may last a lifetime. Although the pregnant or parenting adolescent has the legal right to stay in school, there are a number of practical and emotional barriers to continuing. According to a 1982 study by Flaherty et al, many adolescents felt obligated to care for their infants while others were concerned with leaving their child in a daycare

(Please turn to page 378)

ADOLESCENT PREGNANCY IN IOWA

(Continued from page 377)

situation. The high cost of daycare makes it financially impractical, particularly in rural settings.

If the adolescent father is still in school and attempts to assume responsibility for the baby, he is faced with combining schoolwork and the financial responsibilities of parenting. The educational future of the adolescents is threatened. National statistics show 40% of adolescent fathers do not complete high school.

Occupational Attainment

According to a 1979 study by Maracek, during the first 7 years following adolescent childbearing, adolescent mothers worked less than their peers who delayed childbirth until their twenties. The same study revealed the job status of adolescent mothers was lower than that of their peers.

Economic Status

It is not surprising with reduced educational and occupational attainment, adolescent parents have lower income levels. The effect on quality of life for adolescents and their children is significant.

Although the proportion of teenaged women on the AFDC rolls is small, their long-term recipiency status is of concern. The most frequently cited evidence of this is Kristin Moore's finding that approximately 70% of the total number of AFDC recipients under age 30 in 1975 began motherhood as teens (Moore and Burt, 1982, pp. 108-109).‡

In Iowa, it was estimated 8.5% or 3,000 families receiving AFDC assistance in 1986 were headed by mothers under age 20.§ National studies have estimated the cost of welfare payments and other government support is $15,620-$18,700 per year for a child born in 1985 to a teen mother. If we apply the low estimate of $15,620 (and do not factor in inflation) to the current estimate of 3,000 teen-headed families receiving AFDC benefits, $46,860,000 will be paid out in welfare costs to those 3,000 children each year.§ Multiply these costs for the next 17 years, assuming the cycle of dependency continues, and the costs approach $800 million.

Subsequent Childbearing

In Iowa, the most recent data for comparing adolescent birth order is 1982 through 1984. Total births in 1982 for the 15-19 age group showed there were 3,850 delivering their first child and another 770 delivering their second child. In 1984 3,219 delivered their first child and another 647 delivered their second child. The impact, obviously, is the reduced potential for educational attainment and economic self-sufficiency.

Mental Health

The adolescent who becomes a parent must make substantial compromises and adjustments for successful parenting. The adolescent, male or female, has a new status generally designated for adults in the adult world. The adolescent will experience the continued conflict of trying to participate in adolescent activities while having to meet the needs of the baby. Relationships and activities with peers will not be the same. Future family dynamics will be influenced as well, for example when the child of the adolescent becomes an adolescent.

Relationships With the Family

The costs to the family of adolescent parents must be considered. The teen father and his family are frequently excluded from involvement in decision making about the baby. The parents of the teen father are often denied access to their grandchild. The relationship between daughter and parents may become closer initially, as indicated in a 1980 study by Furstenburg but may have a negative impact as the family attempts to help financially. A family with limited resources, financial and emotional, may find the additional stress unbearable. The daughter may be rejected altogether. Additionally, siblings of the adolescent parent may feel short-changed in time and resources and may replicate the same process to receive attention.

(Please turn to page 380)

‡ p. 77, *Ladders Out Of Poverty: A Report of the Project on the Welfare of Families;* Bruce Babbitt and Arthur Fleming, Co Chair; American Horizons: Washington, D.C. 1986.

§ p. 1 "Summary of Service Provided and Problems Related to Teen Pregnancy and Teen Parenting," Iowa Department of Human Services; 10-3-86.

§ (Ibid)

Resources for Adolescent Childbearing

A number of resources exist around Iowa for the pregnant or parenting adolescent. Their source of funding may be public, private or a combination of both. Eligibility for services may vary with each provider. The following list may not be all inclusive. We would appreciate learning of any additional agencies and resources which are available.

Agency	Services Available
Iowa Department of Public Health Call 1-800-532-1579 for referral	• prenatal care • delivery • food and nutrition counseling • dental care • child health • family planning • home visits for high risk patients • prenatal educational services
University of Iowa (319) 356-2294	• prenatal care • delivery • counseling • family planning
Iowa Department of Human Services Call the local DHS office	• financial support • medical assistance • adoption • foster care • housing • child care • food stamps • transportation • job training
Iowa Department of Education Contact the local school district for specific programming available in your area.	• education • transportation • child care • parenting classes • support groups
Iowa Department of Economic Development Contact local agencies	• job training partnership
Iowa Department of Employment Services (515) 281-4000	• job placement
Birthright Contact the center in your area listed in the telephone business pages	• pregnancy test • counseling • shelter • clothing • volunteer/individual
Teenage Parent Program Four Oaks Cedar Rapids, Iowa (319) 364-7009	• on-site residential service for 9 pregnant and/or parenting teenagers • independent living program — 2 girls — 2 babies per room • classes in parenting • job training • day care • baby reality program • counseling • group/individual counseling
Teenage Pregnancy Program Davenport School District Davenport, Iowa (319) 326-5072	• learning center/child care • prenatal care classes • classes in early parenting skills • group/individual counseling • parents/grandparents counseling • job skills and career exploration funded under JTPA • regular academic curriculum • staff in-service Vera French Mental Health Center
YWCA Support Group for Pregnant Teens and Teenage Parents Marshalltown, Iowa (515) 752-4633	• support groups • counseling • clothing • prenatal care • Lamaze classes • food and nutrition counseling • child care
Young Women's Resource Center Des Moines, Iowa (515) 244-4901	• individual counseling • phone counseling and referral • Young MOMs program
Beginnings Family Planning and Maternal Health Services Clinton, Iowa (319) 243-1414	• support and educational group
YWCA Muscatine, Iowa (319) 263-7924	• VISTA Project • support/information groups • fitness piece • child care • transportation • GED classes • alternative high school
MELD 701 10th Street, S.E. Cedar Rapids, Iowa 52403 (319) 398-6629	• information support groups • group sessions for MOMs by ages of baby • hot meal per week • transportation • child care • topics covered include health, nutrition, child growth and development • family management education and family planning
Young Women's Resource Center 515/244-4901	• prenatal support/information group • young moms (ages 13-22) groups • counseling • community outreach (workshops, support groups)

Resources For Prevention of Adolescent Pregnancy

The state also has a number of resources available for prevention of adolescent pregnancy. The following list represents those known as statewide efforts. We would appreciate learning of any not included.

1. Confidential contraceptive care for adolescents is available statewide at Title X (federal) funded family planning agencies. Fees are based on ability to pay. Family planning staff of agencies around the State are available to provide presentations to schools and community groups related to sexuality, contraceptive care and sexually transmitted diseases. Contact the Iowa Department of Public Health, 1-800-532-1579 or the Family Planning Council of Iowa, 1-515-288-9028 for a directory of agencies.

2. Parent Seminars (project of the Iowa Department of Public Health, Iowa March of Dimes and Iowa PTA) are available around the state for parents to learn current facts on adolescent sexuality, clarify their own values and improve communication techniques for imparting values to their children. Contact the PTA at 515-244-6246 to request a seminar for your area.

3. "TEEN HEALTH LINE" is a statewide health information and referral line which operates 24 hours a day and is toll-free. The project represents a private-public partnership among the Iowa Department of Public Health, Iowa Methodist Hospitals' Adolescent Medicine Unit and The Telephone Pioneers of Iowa. Telephone number is 1-800-443-TEEN. The line is also accessible by TDD, a device for the deaf.

4. Adolescent Health workshops are provided by the Iowa Department of Public Health around the State. Content emphasizes adolescent growth and development, including family communication and depression in adolescents. Workshops are being scheduled for the Fall. Contact Tim Lane at 1-800-532-1579.

Recommendations

State agencies need to be more aggressive in delivering appropriate services to pregnant and parenting adolescents throughout the state. Agencies need to work together to improve and better coordinate their services to this specific population. The following list of recommendations was developed by the State Inter-Agency Task Force.

1. Expand the Maternal and Child Health program to all counties in Iowa.

2. The Departments of Public Health, Education and Human Services (Child Support Recovery Unit) jointly prepare articles about the responsibilities of teen males concerning pregnancy to be distributed to Iowa schools for publication in school papers.

3. Allocate money to the Department of Public Health to purchase or develop posters discouraging teen pregnancy targeted toward teen males as well as females. Distribution of the posters would be through family planning agencies, state agencies, local community agencies and schools.

4. Develop and distribute public service announcements (radio/TV) discouraging teen fatherhood and teen pregnancy. The announcements should have a toll-free 800 phone number for teenagers.

5. Develop K-12 prevention curriculum in life-coping skills and family life education, the core of which is self-esteem building, positive relationships, healthy family relationships, communication skills, problem-solving and decision-making. The curriculum content should include specific information on substance abuse, sex education, family planning, child abuse and suicide, in an effort to promote prevention.

6. Continue and expand the Parent Seminar Project offered by the March of Dimes and the PTA, funded through the Department of Public Health.

7. Ensure all high school guidance counselors are aware of the toll-free 800 phone number offered as an information and referral service by the Department of Public Health.

8. Encourage agencies and school guidance counselors to refer adolescent parents to child health centers (ideally to one staff person), to answer questions and discuss parenting, child development and health concerns. If a child health center is not accessible, par-

enting teens should be referred to the public health nurse.

9. Monitor Title XIX regulations on a continuing basis.

10. Increase the level of funding for family planning, including education and outreach services to teenagers.

11. Monitor federal government regulations on educational grants and loans to ensure educational monies are not counted against eligibility for such entitlement programs as food stamps and low-income housing.

12. Increase the IETP allowable amount of time to complete high school or the GED program from 1 to 3 years, and study removal of the age 16 restriction for eligibility.

13. Allow IETP participants to continue their training program and support services, even if they are ineligible for AFDC for one month.

14. Continue to aggressively pursue establishment of paternity and support orders as early as possible. Allocate additional staff to the Child Support Recovery Unit if needed.

15. Waive or reduce child support payments if a teen father is enrolled in an educational or training program.

16. Provide start up funds through the Department of Public Health for local communities to develop support groups for pregnant and parenting teens.

17. Provide affordable child day care and transportation for all adolescent parents who are continuing their education or training or are employed.

18. Research/explore age and grade at which youth can dropout of the educational system.

19. Develop a case management system to ensure provision and coordination of needed services to pregnant and parenting teens.

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Teenage Pregnancy

According to recent data from the American Medical Association, teenagers account for 46% of all births to unmarried women and one-third of all abortions. Of the 29 million adolescents over age 12, about 12 million are sexually active. Two-thirds of all sexually active girls do not routinely use birth control. The issue of teenage pregnancy is extremely complex and requires complex solutions. For this month's expanded Questions and Answers feature,* IOWA MEDICINE *assembled 6 experts to discuss their perceptions of and possible solutions for this tragic problem.

DR. ALBERTS: Patti, what is your perception of Iowa's teenage pregnancy problem?

PATTI BROWN: During 1986, we had nearly 4,000 teen births in Iowa. For every teen birth, there is almost 1 abortion. At any given time there are 3,000 teenagers receiving ADC. These kids support their children on welfare at a cost of over $20 million to the state.

One thing I find is that many girls become pregnant after dropping out of school, not the other way around. That was a surprise to me.

DR. ALBERTS: Donna, how often do girls come to you with this problem?

DR. DREES: I basically have a middle to upper middle class practice. The sophistication is such that more often I have women bring in their daughters and say they want them on the pill because they're sexually active. I delivered 5 girls this year who went through with their pregnancies. Two had not finished high school and 3 were in their first year out of school.

My usual approach is to ask them what they think about the situation.

DR. ALBERTS: Jan, you are active in the Iowa Adolescent Pregnancy Resource and Action Network. What are the goals of this group?

JAN BANNISTER: A number of concerned Polk County residents formed the network in 1986. The purpose is to promote community awareness of teenage pregnancy and help the community support services and programs directed toward prevention. We know it takes the whole community working together to impact on this problem.

DR. ALBERTS: What groups are involved in the network?

JAN BANNISTER: The Young Mom's Program of the Young Women's Resource Center, social workers, Planned Parenthood of Mid-Iowa , the Des Moines Child Guidance Center, YWCA, school counselors, school nurses, parents — a full range of community people.

The IMS Auxiliary also is involved in teenage pregnancy prevention programs through the AMA's initiative on Adolescent Health. This AMA program emphasizes positive approaches for helping adolescents grow into healthy adults.

DR. ALBERTS: Pastor Schmalenberger, how often do parents or teenagers turn to you with this problem? Does your church have an educational program for youth regarding teenage pregnancy prevention?

PASTOR SCHMALENBERGER: In the past year, 8 or 9 girls came to me because they

Roundtable Participants



Front Row from Left — Carrie Lombard, a single teenager with a 1-year-old baby; Marion E. Alberts, M.D. (moderator), a Des Moines pediatrician and Scientific Editor of IOWA MEDICINE; *and Patti Brown, M.S.W., a clinical social worker at Broadlawns Family Health Center in Des Moines. Back Row from Left — Jan Bannister, IMS Auxilian and member of the Iowa Adolescent Pregnancy Resource and Action Network; Barb Minear, Young Mom's Program Coordinator at the Young Women's Resource Center in Des Moines; Donna Drees, M.D., a Des Moines family physician; and Pastor Jerry Schmalenberger of St. John's Lutheran Church in Des Moines.*

suspected they were pregnant. That's out of a congregation of 4,000.

In my congregation, we have complete sexuality courses done by nurses and church school teachers for 4-year-olds through high school age kids. We also teach parents how to talk to their children about sexuality. The problem is that in Polk County, for example, not half the people belong to a church and about half the churches have no programs dealing with sex education.

DR. ALBERTS: Carrie, how did you first confirm you were pregnant?

CARRIE LOMBARD: I had morning sickness but I didn't know why. My mother told me I was pregnant and took me to Planned Parenthood where I got counseling. I seriously considered adoption. Then I got too attached to the baby and had to keep her. She was mine.

The Young Mom's Program helped. It's very supportive. There are young moms from 13 to 22. You get to talk about your problems and find out how other people feel.

BARB MINEAR: At the Young Women's Resource Center, we also started a prenatal group last year. Carrie was one of the first members of that group. We've found young women are very concerned about labor and delivery and whether they will survive.

DR. ALBERTS: There's another facet to the issue of education. As a pediatrician, I've had girls and mothers come in and ask about the pill. Not once in 35 years have I had anyone ask how to instruct their son on contraception.

PATTI BROWN: So much emphasis is placed on the young women because it's usually the young woman who's going to have the caretaking responsibilities. I find in my work that virtually 100% keep their babies. Boys don't end up with the babies.

PASTOR SCHMALENBERGER: I notice in sexuality classes I teach that girls and boys coming through our public schools know the reproductive system of the female but nothing about the male system.

DR. DREES: I think there should be educational programs to teach parents how to talk about sexuality. Someone I know spoke to 10th grade boys about male sexuality. He asked how many had had a meaningful discussion with a parent about sex. There were

(Please turn to page 384)

TEENAGE PREGNANCY

(Continued from page 383)

4 or 5 who had. He asked how many had watched triple X movies — they all had. Maybe we need meaningful quips between t.v. commercials that say 'Have you discussed sex with your son lately?' 'Is you son sexually active?' 'Is your son becoming a responsible adult?'

PATTI BROWN: We're still not going to reach all kids because not all parents will take that responsibility. At Broadlawns, we deal with about 200 kids a year who have babies. That's a third of the babies born in Polk County. Many kids come from disenfranchised families without traditional support systems.

DR. ALBERTS: Carrie, did it seem to you when you became sexually active that you were taking a risk?

CARRIE: No.

"It was like he said I had to go on the pill. I wanted to say, 'You take the responsibility.' "

DR. ALBERTS: Were you using birth control?

CARRIE: No. I told my boyfriend I didn't want to take the pill because it was against what I believe. It was like he said I had to go on the pill. I wanted to say 'You take the responsibility.'

PATTI BROWN: Lots of teens feel if they prepare for sex by using contraceptives that they're "sleazy" and "dirty." If they're swept away by the moment it's considered romantic sex and that justifies it.

DR. ALBERTS: Dr. Drees and Pastor Schmalenberger, how do you counsel a young woman who comes to you and says she's pregnant?

DR. DREES: You provide emotional support. I try to be very non-judgmental and explain their options. I tell them if they elect to carry the pregnancy, we have all sorts of help and resources available. They're usually 3 or 4 weeks pregnant, so they have time to decide whether they want to terminate the pregnancy. I discourage them from scheduling an abortion tomorrow. I think it's very important that they have time to think about it and get help.

PASTOR SCHMALENBERGER: My approach is similar — giving them all the options

"We must face the fact that nearly half of teenagers are sexually active by age 16."

and helping them decide. I often have to deal with somebody pushing marriage. I also deal with the girls' fathers, who are very angry because they've been violated somehow.

CARRIE LOMBARD: I'm surprised you have so many kids come to you. I would think no one would come to a pastor.

PASTOR SCHMALENBERGER: Remember, we've talked at length with every kid in our parish. The main thing that comes from sexuality education is establishing a rapport with those kids.

PATTI BROWN: You've cast out a net and told them it's safe to talk to you about it. You haven't prejudged them before they walk in your office.

PASTOR SCHMALENBERGER: Our sex education program has moved toward forcing communication. There are questions they must talk over with the person they live with and report back. Forced communication is painful for both sides but I'm convinced it's more important then anything else we do. But of course, there are always those who will accuse you of teaching promiscuity.

PATTI BROWN: Teenage pregnancy is a complicated problem with complicated solutions. I'm frustrated because, in Iowa, we have a cloistered way of dealing with it. If we talk about it at all, it's supposed to be quietly. There is a belief that only parents, family and church should educate on sexuality. I think physicians

can be fantastic educators. They have an ability to educate as no one else can.

DR. ALBERTS: Do you think the medical community is doing this?

PATTI BROWN: I don't think they're doing it, but I think they have the ability. They have the "plumbing information," which is important; but they also have the experience of dealing with people. They teach all kinds of things on many different levels about patient health.

PATTI BROWN: I recently did a television talk show on teenage pregnancy. When the cameras were rolling, the questions the kids asked were so safe. During the breaks and after the program, the questions weren't so safe. They asked 'Can you really get pregnant the first time?' 'How can I keep from getting AIDS?' Any time a teenager goes to a doctor's office it's an opportunity for that doctor to ask how they're dealing with things and provide accurate medical information.

"I encourage these young women to make their decision pensively, with all the help they can get, and never look back."

DR. DREES: Teens are inhibited in so many ways at that age. They have anxiety and cover it with a demeanor of cockiness and indifference. First, I find myself thinking this young girl can't possibly be as smart as she thinks she is. Then I see she's just a maturing child and she's scared to death. It's hard even for professionals to work around all the barriers they put up.

DR. ALBERTS: What would each of you like to tell physicians about teenage pregnancy? What do you expect from physicians?

CARRIE LOMBARD: I think they need to talk more to parents and teach them how to educate their kids on sex, drugs and alcohol problems because we have a lot of them.

PASTOR SCHMALENBERGER: I would plead for the doctor to be aware of other resources in the community and see that more than mechanical help is given. The issue of guilt needs to be dealt with because it can affect those involved for a lifetime. There are good resources for referral.

BARB MINEAR: I urge physicians to talk to teenagers on their level so they can understand what you're trying to give them educationally. Help them look at options and treat them as respected individuals. You'll lose them if you tell them what to do.

JAN BANNISTER: Be non-judgmental and be an advocate for the adolescent. I encourage physicians and physicians' families to be involved in their communities. Physicians and medical societies must be more supportive of school systems and health care systems in their communities that help families deal with this issue. We must face the fact that nearly half of teenagers are sexually active by age 16.

DR. DREES: As a physician seeing these girls, I try to give them more time than the ordinary patient. I encourage them to make their decision pensively, with all the help they can get, and never look back.

PATTI BROWN: I believe the physician can be a community leader in this area. The physician has an enormous capacity to be an agent of social change. We need more vocal physicians telling people they see this problem in their everyday practices.

"I plead for the doctor to be aware of other resources in the community and see that more than mechanical help is given."

JAN BANNISTER: I have a friend who's the mother of 3 adopted children. From the time they were infants she talked to them about God, sex and adoption. By the time they were adolescents, she was comfortable talking to them about any of those subjects. Communication is the name of the game, whether we're parents or physicians.

(Please refer to this month's In the Public Interest feature for more information on the role of the IMS and organized medicine in efforts to deal with teenage pregnancy.)

ADVANCE ANNOUNCEMENT

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GUEST FACULTY:

Merle Sande, M.D.
Professor of Medicine, University of California at San Francisco and Chief of the Medical Service, San Francisco General Hospital.

SPECIAL EVENTS:

The University of Iowa Homecoming parade is scheduled for Friday evening, October 23rd, in downtown Iowa City.

A limited number of tickets to the University of Iowa Homecoming football game against Purdue to be played on Saturday, October 24, have been reserved for program participants.

For More Information:

Call or write the Office of Continuing Medical Education, The University of Iowa, Iowa City, Iowa 52242, 319/335-8598.

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DESCRIPTION. INDERAL LA is formulated to provide a sustained release of propranolol hydrochloride. INDERAL LA is available as 60 mg, 80 mg, 120 mg, and 160 mg capsules.

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INDERAL LA Capsules (60, 80, 120, and 160 mg) release propranolol HCl at a controlled and predictable rate. Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours. When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 65% to 85% of the AUCs for a comparable divided daily dose of INDERAL Tablets. The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol, resulting from the slower rate of absorption of propranolol. Over a twenty-four (24) hour period, blood levels are fairly constant for about twelve (12) hours then decline exponentially.

INDERAL LA should not be considered a simple mg-for-mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose. When changing to INDERAL LA from conventional propranolol, a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval. In most clinical settings, however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect, INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate, systolic pressure and rate pressure product. INDERAL LA can provide effective beta blockade for a 24-hour period.

INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension. It may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic. INDERAL LA is not indicated in the management of hypertensive emergencies.

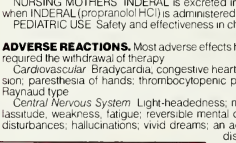
Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris.

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache. The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use.

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis, especially for treatment of exertional or other stress-induced angina, palpitations, and syncope. INDERAL LA also improves exercise performance. The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation. Clinical improvement may be temporary.

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock, 2) sinus bradycardia and greater than first-degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL.

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WARNINGS. CARDIAC FAILURE. Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely; or INDERAL should be discontinued (gradually, if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following *abrupt* discontinuance of INDERAL therapy. Therefore, when discontinuance of INDERAL is planned, the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema) — PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

MAJOR SURGERY. The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, eg, dobutamine or isoproterenol. However, such patients may be subject to protracted severe hypotension. Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers.

DIABETES AND HYPOGLYCEMIA. Beta blockers should be used with caution in diabetic patients if a beta-blocking agent is required. Beta blockers may mask tachycardia occurring with hypoglycemia, but other manifestations such as dizziness and sweating may not be significantly affected. Following insulin-induced hypoglycemia, propranolol may cause a delay in the recovery of blood glucose to normal levels.

THYROTOXICOSIS: Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol may change thyroid function tests, increasing T_4 and reverse T_3 and decreasing T_3.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case, this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS. GENERAL: Propranolol should be used with caution in patients with impaired hepatic or renal function. INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies.

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure. Patients should be told that INDERAL may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

CLINICAL LABORATORY TESTS: Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS: Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension.

Caution should be exercised when patients receiving a beta blocker are administered a calcium-channel-blocking drug, especially intravenous verapamil, for both agents may depress myocardial contractility or atrioventricular conduction. On rare occasions, the concomitant intravenous use of a beta blocker and verapamil has resulted in serious adverse reactions, especially in patients with severe cardiomyopathy, congestive heart failure or recent myocardial infarction.

Aluminum hydroxide gel greatly reduces intestinal absorption of propranolol.

Ethanol slows the rate of absorption of propranolol.

Phenytoin, phenobarbitone, and *rifampin* accelerate propranolol clearance.

Chlorpromazine, when used concomitantly with propranolol, results in increased plasma levels of both drugs.

Antipyrine and *lidocaine* have reduced clearance when used concomitantly with propranolol.

Thyroxine may result in a lower than expected T_3 concentration when used concomitantly with propranolol.

Cimetidine decreases the hepatic metabolism of propranolol, delaying elimination and increasing blood levels.

Theophylline clearance is reduced when used concomitantly with propranolol.

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY. Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

PREGNANCY: Pregnancy Category C. INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose. There are no adequate and well-controlled studies in pregnant women. INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

NURSING MOTHERS. INDERAL is excreted in human milk. Caution should be exercised when INDERAL (propranolol HCl) is administered to a nursing woman.

PEDIATRIC USE. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

Cardiovascular. Bradycardia, congestive heart failure; intensification of AV block; hypotension; paresthesia of hands; thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type.

Central Nervous System. Light-headedness; mental depression manifested by insomnia, lassitude, weakness, fatigue; reversible mental depression progressing to catatonia; visual disturbances; hallucinations; vivid dreams; an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics. For immediate formulations, fatigue, lethargy, and vivid dreams appear dose related.

Gastrointestinal: Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic: Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory: Bronchospasm.

Hematologic: Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Auto-Immune: In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous: Alopecia, LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily. If patients are switched from INDERAL Tablets to INDERAL LA Capsules, care should be taken to assure that the desired therapeutic effect is maintained. INDERAL LA should not be considered a simple mg-for-mg substitute for INDERAL. INDERAL LA has different kinetics and produces lower blood levels. Retitration may be necessary, especially to maintain effectiveness at the end of the 24-hour dosing interval.

HYPERTENSION — *Dosage must be individualized.* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic. The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved. The usual maintenance dosage is 120 to 160 mg once daily. In some instances a dosage of 640 mg may be required. The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks.

ANGINA PECTORIS — *Dosage must be individualized.* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three- to seven-day intervals until optimal response is obtained. Although individual patients may respond at any dosage level, the average optimal dosage appears to be 160 mg once daily. In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established.

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS).

MIGRAINE — *Dosage must be individualized.* The initial oral dose is 80 mg INDERAL LA once daily. The usual effective dose range is 160-240 mg once daily. The dosage may be increased gradually to achieve optimal migraine prophylaxis. If a satisfactory response is not obtained within four to six weeks after reaching the maximal dose, INDERAL LA therapy should be discontinued. It may be advisable to withdraw the drug gradually over a period of several weeks.

HYPERTROPHIC SUBAORTIC STENOSIS — 80-160 mg INDERAL LA once daily.

PEDIATRIC DOSAGE — At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use.

*The appearance of these capsules is a registered trademark of Ayerst Laboratories.

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Pelvic Inflammatory Disease in Adolescents

DONALD E. GREYDANUS, M.D.
Des Moines, Iowa

Pelvic Inflammatory Disease (PID) is a significant risk for sexually-active young women. If PID is inadequately treated, infertility can result. The author discusses diagnosis and treatment of PID and emphasizes the importance of educating physicians and adolescents about the disease.

THE MOST SIGNIFICANT SEXUALLY transmitted disease confronting American adolescents is Pelvic Inflammatory Disease (PID). There are 300,000 to 400,000 cases of adolescent PID identified in the United States annually. Because PID is not reportable, we have only estimates — probably conservative ones. Most cases are found in nulliparous women under age 25. Because infertility is a common sequela to inadequately treated PID, this disorder can have an enormous impact on adolescents. It translates into millions of patient visits and billions of health care dollars each year.

Dr. Greydanus is Director, Adolescent Medicine Program, Raymond Blank Memorial Hospital for Children, Iowa Methodist Medical Center, Des Moines, Iowa.

Literature of the 1970's presented evidence millions of American teenagers were sexually active and had minimal knowledge of contraception and venereal disease. Early, aggressive treatment of PID will prevent enormous potential morbidity. We must educate our youth about PID and educate ourselves about its diagnosis and treatment.

PID can be associated with surgery, malignancy, instrumentation, pregnancy and sexually transmitted diseases. This paper focuses on sexually transmitted PID in the adolescent female.

Pathophysiology

PID is an infection of the lower genital tract, specifically the fallopian tubes and uterus. Numerous microorganisms can be found at various stages of PID. Table 1 lists bacteria which have been implicated during different stages of the disease complex. Classic theory states most cases are initiated by Chlamydia trachomatis or Neisseria gonorrhoeae. Some cases are initiated by Mycoplasma hominis; some unusual reports identify N. meningitidis and even Group A beta hemolytic Streptococci. Studies show cases initiated by N. gonorrhoeae vary from 30-80%.

In most reviews, C. trachomatis is the other major precipitant to PID development. This primary invasion (with N. gonorrhoeae) or C. trachomatis) causes fallopian tube injury and often results in mixed bacterial infection — especially coliform bacteria and anaerobic

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR THE MONTH OF AUGUST 1987

TABLE 1

BACTERIAL AGENTS OF PELVIC INFLAMMATORY DISEASE

Chlamydia trachomatis
Neisseria gonorrhoeae
Mycoplasma hominis
Group A beta-hemolytic Streptococcus
Neisseria meningitidis
Coliform bacteria: Enterobacteriaceae
Bacteroides fragilis
Streptococcus faecalis
Other anaerobic microbes
Other aerobic microbes

microbes (specifically Bacteroides fragilis). It is this "super" infection which can hinder effective treatment and lead to a high complication rate.

There are 3 main types of adolescent PID: gonococcal, chlamydial and polymicrobial. The longer the interval from initial mono-microbial infection, the more likely it is polymicrobial. Because teenagers often delay treatment, this is the type of PID the youth may present to the clinician. Actinomyces israelii may be seen, especially if an intrauterine device (IUD) is present. The role of viruses (Herpes simplex or cytomegalovirus) remains unproven. Recent literature suggests autoimmune phenomena may be present but more study is needed to clarify the possibility PID may be partly an immunologic disorder.

Identifying the agents responsible for the PID symptomatology can be difficult. There are many factors influencing culture results. Different culture sites can be used (rectum, cervix, fallopian tubes or peritoneum) with different results. The timing of cultures can be important in identifying a mono- or polymicrobial infection. The gonococcal toxin may cause injury without evidence of a major genital gonococcal invasion. The presence of an agent in the cervix does not mean PID is inevitable.

Classic studies suggest 10-20% of cervical gonorrhea develops into PID. Parallel figures for chlamydia are unknown. The presence of the menstrual period may be important, since over two-thirds of gonococcal PID occurs within 7 days of menstruation. Coitus can be a factor since recent evidence suggests sperm or Trichomonas vaginalis can carry bacteria to the fallopian tube. Other factors which can have a role in PID include the type of bacteria (auxotype or colony phenotype in Neisseria gonorrhoeae), antimicrobial susceptibility of the involved microbe(s), local (genital) antibody activity and serum bactericidal activity.

Studies have identified general risk factors for PID. Teenagers are at risk since some change sex partners frequently, often without knowledge of their partner's sex practices. A history of previous PID is also important; 20% of those with gonococcal PID have at least one more episode. Youth with an IUD run risks for severe PID episodes since the IUD dramatically changes endometrial defense mechanisms. A nidus infection may develop with pain and bleeding. Submucosal microabscesses may occur with subsequent endometritis and severe fallopian tube infection and/or injury. Adolescents with an IUD have a 3 to 9-fold increase in PID.

PID is unusual during pregnancy, probably because of the anatomical protection pregnancy affords. Recent studies note individuals on oral contraceptives have a significantly lower incidence of gonococcal-induced PID and less severe PID episodes. Reasons for this are unclear. Unfortunately, oral contraceptive users have a higher incidence of Chlamydia trachomatis within the cervix; a higher incidence of chlamydial-induced PID is thus noted.

Diagnosis

The diagnosis of PID usually presents considerable challenge. Abdominal pain in the sexually active adolescent female must be evaluated with caution. Assume any sexually active adolescent with lower abdominal pain has PID until a careful clinical assessment reveals another explanation.

Only 20% of patients present with classic PID symptoms (fever, leukorrhea, adnexal tenderness, leukocytosis and elevated erythrocyte sedimentation rate). Most individuals have abdominal (adnexal) tenderness but only half have abnormal vaginal discharge. Adnexal enlargement(s) is noted in only 25%; the classic tubo-ovarian abscess is described in only 10% of cases. Episodes of painless PID are well described when Chlamydia trachomatis is the responsible bacterial agent. Perhaps 10% of Chlamydia trachomatis induced PID cases may have minimal abdominal/adnexal tenderness.

TABLE 2

DIFFERENTIAL DIAGNOSIS OF PELVIC INFLAMMATORY DISEASE

Appendicitis
Endometriosis
Ectopic pregnancy
Ovarian cyst (with or without torsion or rupture)
Pyelonephritis
Mesenteric lymphadenitis
Inflammatory bowel disease
Diabetic ketoacidosis
Henoch-Schönlein syndrome
Hemolytic-uremic syndrome
Gastroenteritis (as due to Yersinia enterocolitica or Campylobacter fetus)
Acute intermittent porphyria
Other

Laparoscopy is often advocated to identify PID, especially atypical types.

The differential diagnosis of PID is considerable (Table 2). Various medical and surgical causes of abdominal pain must be carefully considered. One must not assume serious causes of abdominal pain only present in the emergency room. Astute clinicians can find PID in office practice, especially early cases when treatment is more effective. A careful history and physical examination (with pelvic evaluation) are keystones to the correct diagnosis.

Lower abdominal pain (especially adnexal tenderness) is highly suggestive; but variable symptomatology is classic for PID. A negative serum pregnancy test is an important tool, often screening out ectopic pregnancy. Cultures can be negative and routine blood tests (white blood counts or erythrocyte sedimentation rate) can be normal or elevated. Recent studies seek to implicate increased white blood counts in vaginal wet smears or peritoneal fluid, increased inflammatory plasma proteins (as C-reactive protein or antichymotrypsin) or various ratios of genital isoamylases in peritoneal fluid versus the serum. Unfortunately these have no current general clinical usefulness for PID diagnosis. Ultrasonography or culdocentesis may be helpful in some cases.

Current literature emphasizes the importance of laparoscopy since PID cannot be accurately diagnosed after only a history and physical examination. Studies of Jacobson and Westrom note even experts who base a diagnosis of PID on a history and physical examination correctly identify salpingitis in only 65% of cases when laparoscopy is used to confirm the diagnosis. Studies note other diagnoses are present in 12% and a normal pelvis is present in 23%. These studies on adult women remind us to diagnose PID with great care in adolescents.

Laparoscopy is an excellent tool, especially in cases which are confusing at initial presentation or where rapid response to appropriate treatment plans does not occur. We do not recommend laparoscopy be used in every case of suspected PID. The well trained individual can use the laparoscope to obtain cultures directly from the fallopian tube. However, laparoscopy will not always correctly diagnose PID, especially early cases. Current studies indicate laparoscopy can be used to correctly diagnose PID in about 95% of cases.

It should be remembered early diagnosis with aggressive treatment reduces the potential sequelae of PID. These complications include infertility, ectopic pregnancy, Fitz-Hugh — Curtis Syndrome,* tubo-ovarian abscess,

* The Fitz-Hugh — Curtis Syndrome† (perihepatitis) is due to inflammation of the liver capsule after genital infection with *Neisseria gonorrhoeae* or *Chlamydia trachomatis*.‡ There may or may not be symptomatic genital infection at the time the perihepatitis presents. Acute, severe, knife-like right upper quadrant pain develops with or without right shoulder pain, right costal margin friction rub, and abdominal rebound or rigidity. Fever, nausea, emesis, hiccups, pleurisy, and pleuritic chest pain may also occur. The ESR is elevated while there is often a brief elevation of the liver enzymes and amylase. A laparoscopy will usually demonstrate the perihepatic inflammation and/or presence of the adhesions between the anterior abdominal wall and the liver. Most acute cases will have a positive cervical culture for gonorrhea or Chlamydia.

The differential diagnosis includes other sources of right upper quadrant pathology including cholecystitis, pancreatitis, peptic ulcer disease, hepatitis, pyelonephritis, pleurisy (with or without pneumonia), pulmonary embolism, pleurodynia, Herpes zoster and others. A rapid response to antibiotics is usually noted. Some individuals develop chronic pain due to the adhesions, requiring lysing of them for pain relief via laparoscopy. Correct diagnosis is based on a high index of suspicion in a sexually active female with right upper quadrant pain and chlamydial or gonococcal infection. The pain improves with antibiotics, while the diagnosis can be confirmed with laparoscopy.

†Semchyshyn S: Fitz-Hugh and Curtis syndrome. J Reproduc Med 1979;22(1):45-48.

‡Wang S-P, *et al:* Chlamydia trachomatis in Fitz-Hugh — Curtis syndrome. Amer J Obstet Gynecol 1980;138 (7:2):1034-1038.

(Please turn to page 390)

TABLE 3

TREATMENT PLANS FOR UNCOMPLICATED CERVICITIS (GONOCOCCAL AND CHLAMYDIAL)

A. *Gonococcal cervicitis*
 1. Aqueous procaine penicillin G (4.8 million units IM) plus probenecid (1 g orally)
 2. Tetracycline (500 mg orally, 4 times daily for 5 days)
 3. Ampicillin (3.5 g orally) or amoxicillin (3 g orally) plus probenecid (1 g orally)
 4. Doxycycline (100 mg orally, twice daily for 5 days)
 5. Erythromycin (500 mg orally, 4 times daily for 5 days)
 6. Cefotaxime (1 g IM)
 7. Spectinomycin (2 g IM)
 8. Cefoxitin (2 g IM) plus probenecid (1 g orally)

B. *Gonococcal cervicitis due to penicillinase-producing strains*
 1. Spectinomycin (2 g IM)
 2. Trimethoprim (80 mg) plus sulfamethoxazole (400 mg), 9 tablets orally in one dose for 5 days to treat pharyngeal gonorrheal infection
 3. Cefotaxime (1 g IM)
 4. Cefoxitin (2 g IM) plus probenecid (1 g orally)

C. *Chlamydial cervicitis*
 1. Tetracycline, 500 mg 4 times daily orally for 7 days
 2. Doxycycline, 100 mg 2 times daily orally for 1 week
 3. Erythromycin, 500 mg 4 times daily orally for 1 week

TABLE 4

INTRAVENOUS ANTI-PID ANTIBIOTIC THERAPY PLANS

1. IV Tetracycline (250-500 mg QID) or IV Ampicillin (500 mg to 1 g QID)
2. Doxycycline (100 mg IV q 12 h) with metronidazole (1 g q 12 h)
3. Doxycycline with Cefoxitin (2 mg QID)
4. Doxycycline with Clindamycin (600 mg QID)
5. Aqueous crystalline penicillin G (20 million units/day) with gentamicin or tobramycin (2 mg/kg initially, followed by 1.5 mg/kg TID). Clindamycin can be added in 1-2 days if clinical improvement does not occur.
6. Others

chronic abdominal pain complex, dysmenorrhea and dysfunctional uterine bleeding. The studies of Westrom contend one severe episode of gonococcal PID can cause bilateral tubal occlusion in 13% of cases. If there are 2 episodes, 35% become sterile; if there are 3 or more episodes, 75% become sterile. If the PID is due to Chlamydia or polymicrobial etiology, these figures may be even higher. It is estimated there were one million cases of PID-induced infertility during the 1970's. The clinician must suspect pelvic inflammatory disease when presented with a sexually active teenager who complains of lower abdominal pain.

Treatment

A variety of antibiotics and therapy regimens is recommended to treat PID. Because it is difficult to know which microorganisms are responsible at a given time, clinical judgment is required. Close observation is recommended and it is often important to switch to a new treatment regimen. Because some teenagers do not take oral medications well and because of the serious nature of PID sequelae, we recommend early hospitalization and vigorous parenteral treatment in most cases. Hospitalization is clearly warranted if an oral medication plan has failed, the patient has been ill for several days, peritoneal signs are noted, the diagnosis is unclear, enlarged adnexa develop or pregnancy occurs.

If uncomplicated gonococcal or chlamydial cervicitis occurs, various treatment plans are suggested (Table 3). If broader oral antibiotic coverage is needed, metronidazole (1 Gm BID) can be combined with doxycycline (100 mg BID) or tetracycline (500 mg QID) — oral doses. These medications should not be given to pregnant teenagers. Metronidazole is useful for its antianaerobic coverage (especially against Bacteroides fragilis). It has proven to be a safe drug for youth but patients should be told to abstain from alcohol due to the disulfiram effect.

"If there is a question regarding the diagnosis or the treatment plans are unsuccessful, laparoscopy should be used to identify the exact pathology."

There is a variety of intravenous antibiotic therapy plans available (Table 4). The author favors IV doxycycline with IV metronidazole. PID which has gone on for several days may be due to multiple aerobic and anaerobic bacteria. Appropriate broad spectrum antibiotic therapy is necessary to limit the PID sequelae. Intravenous treatment plans are utilized until clinical improvement occurs; then oral medications can be used for 10-14 days of antibiot-

(Please turn to page 391)

Before prescribing, see complete prescribing information in SK&F CO. literature or *PDR*. The following is a brief summary.

* **WARNING**

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

Warnings: **Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired.** If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K^+ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K^+ intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of triamterene and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Angiotensin-converting enzyme (ACE) inhibitors can elevate serum potassium; use with caution with 'Dyazide'. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin [ACTH]). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function. Thiazides may add to or potentiate the action of other antihypertensive drugs. Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

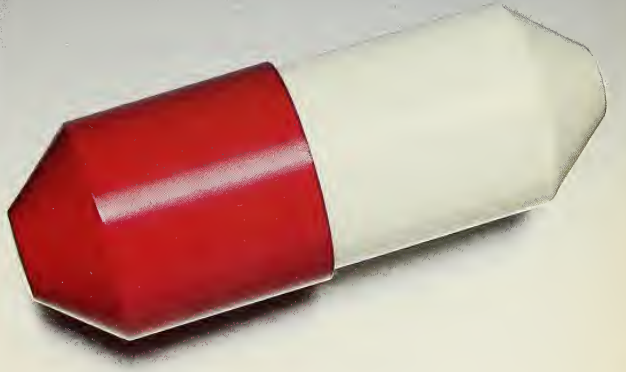
Supplied: 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules, Single Unit Packages (unit-dose) of 100 (intended for institutional use only), in Patient-Pak™ unit-of-use bottles of 100.

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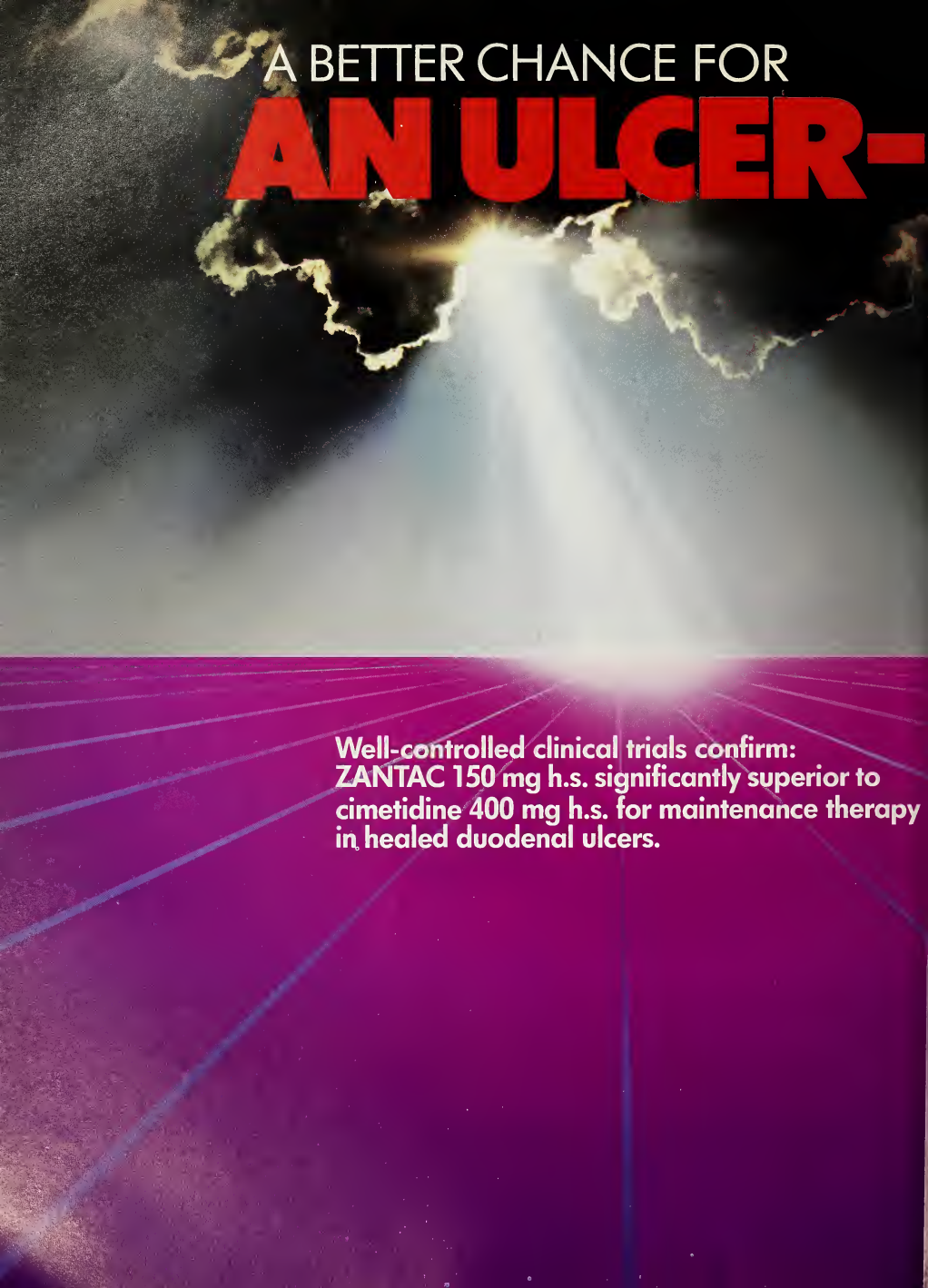


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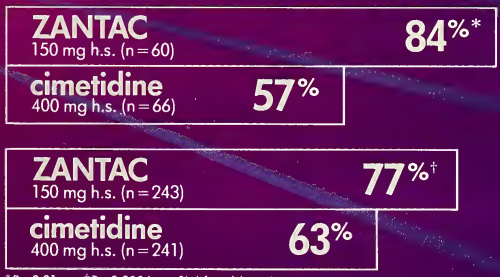
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Well-controlled clinical trials confirm:
ZANTAC 150 mg h.s. significantly superior to
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in healed duodenal ulcers.

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Percent of patients ulcer-free after 1 year of therapy



*P = 0.01 †P = 0.0004 % life-table estimates

All patients were permitted prn antacids for relief of pain.
Adapted from Silvis[1] and Gough[2]

These two trials[1,2] used the currently recommended dosing regimen of cimetidine (400 mg h.s.) and ranitidine (150 mg h.s.). A comparison of other dosing regimens has not been studied.
The studied dosing regimens are not equivalent with respect to the degree and duration of acid suppression or suppression of nocturnal acid.
The superiority of ranitidine over cimetidine in these trials indicates that the dosing regimen currently recommended for cimetidine is less likely to be as successful in maintenance therapy.

Zantac® 150 h.s.
ranitidine HCl/Glaxo 150 mg tablets

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See next page for references and Brief Summary of Product Information.

ZAN375 July 1987

References: 1. Silvis SE, Griffin J, Hordin R, et al: Finol report on the United Stotes multicenter triol comporing ronitidine to cimetidine as maintenonce theropy following heoling of duodenol ulcer. J Clin Gostroenterol 1985;7(6):482-487.
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ZANTAC® 150 Tablets
(ranitidine hydrochloride)
ZANTAC® 300 Tablets
(ronitidine hydrochloride)

BRIEF SUMMARY OF PRODUCT INFORMATION

The following is o brief summory only. Before prescribing, see complete prescribing information in ZANTAC® product lobeling.

INDICATIONS AND USAGE: ZANTAC® is indicoted in:
1. Short-term treotment of **octive duodenol ulcer.** Most potients heol within four weeks.
2. **Mointenonce theropy** for duodenol ulcer potients ot reduced dosoge ofter heoling of ocute ulcers.
3. The treotment of **pothologicol hypersecretory conditions** (eg, Zollinger-Ellison syndrome ond systemic mostocytosis).
4. Short-term treotment of **octive, benign gostric ulcer.** Most potients heol within six weeks ond the usefulness of further treotment hos not been demonstroted.
5. Treotment of **gastroesophogeol reflux diseose (GERD).** Symptomotic relief commonly occurs within one or two weeks ofter storting theropy ond is mointoined throughout a six-week course of theropy.

In octive duodenol ulcer; octive, benign gostric ulcer; hypersecretory stotes; ond GERD, concomitont ontocids should be given os needed for relief of poin.

CONTRAINDICATIONS: ZANTAC® is controindicoted for potients known to have hypersensitivity to the drug.

PRECAUTIONS: Symptomotic response to ZANTAC® theropy does not preclude the presence of gostric molignoncy.

Since ZANTAC is excreted primorily by the kidney, dosage should be odjusted in potients with impoired renol function (see **DOSAGE AND ADMINISTRATION**). Coution should be observed in potients with hepotic dysfunction since ZANTAC is metobolized in the liver.

Folse-positive tests for urine protein with Multistix® moy occur during ZANTAC theropy, ond therefore testing with sulfosolicylic ocid is recommended.

Although recommended doses of ZANTAC do not inhibit the oction of cytochrome P-450 enzymes in the liver, there hove been isoloted reports of drug interoctions which suggest thot ZANTAC moy offect the bioovoilobility of certoin drugs by some mechonism os yet unidentified (eg, o pH-dependent effect on obsorption or o chonge in volume of distribution).

Lock of experience to dote precludes recommending ZANTAC for use in children or pregnont potients. Since ZANTAC is secreted in humon milk, coution should be exercised when odministered to o nursing mother.

ADVERSE REACTIONS: Heodoche, sometimes severe, seems to be reloted to ZANTAC® odministrotion. Constipotion, diorrheo, nouseo/vomiting, ond obdominol discomfort/poin hove been reported. There hove been rore reports of moloise, dizziness, somnolence, insomnio, vertigo, tochycordio, brodycordio, premoture ventriculor beots, ond orthrolgios. Rore coses of reversible mentol confusion, ogitotion, depression, ond hollucinotions hove been reported, predominontly in severely ill elderly potients.

In normol volunteers, SGPT volues were increosed to ot leost twice the pretreotment levels in 6 of 12 subjects receiving 100 mg qid IV for seven doys, ond in 4 of 24 subjects receiving 50 mg qid for five doys. With orol odministrotion there hove been occosionol reports of reversible hepotitis, hepotocellulor or hepotoconoliculor or mixed, with or without joundice.

There hove been rore reports of reversible leukopenio, gronulocytopenio, thrombocytopenio, ond poncytopenio.

Although controlled studies hove shown no ontiondrogenic octivity, occosionol coses of gynecomostio, impotence, ond loss of libido hove been reported in mole potients receiving ZANTAC, but the incidence did not differ from thot in the generol popolotion.

Incidents of rosh, including rore cases suggestive of mild erythemo multiforme, ond, rorely, olopecio, hove been reported, os well os rore coses of hypersensitivity reoctions (eg, bronchospasm, fever, rosh, eosinophilio) ond small increoses in serum creotinine.

OVERDOSAGE: Informotion concerning possible overdosoge ond its treotment oppeors in the full prescribing informotion.

DOSAGE AND ADMINISTRATION: Active Duodenol Ulcer: The current recommended odult orol dosoge is 150 mg twice doily. An olternote dosoge of 300 mg once doily ot bedtime con be used for potients in whom dosing convenience is importont. The odvontoges of one treotment regimen compored to the other in o porticulor potient popolotion hove yet to be demonstroted.

Mointenance Theropy: The current recommended odult orol dosoge is 150 mg ot bedtime.

Pothological Hypersecretory Conditions (such os Zollinger-Ellison Syndrome): The current recommended odult orol dosoge is 150 mg twice o doy. In some potients it moy be necessory to odminister ZANTAC 150-mg doses more frequently. Doses should be odjusted to individuol potient needs, ond should continue os long as clinicolly indicoted. Doses up to 6 g/doy hove been employed in potients with severe diseose.

Benign Gostric Ulcer: The current recommended odult orol dosoge is 150 mg twice o doy.

GERD: The current recommended odult orol dosoge is 150 mg twice o doy.

Dosoge Adjustment for Potients with Impoired Renol Function: On the bosis of experience with o group of subjects with severely impoired renol function treoted with ZANTAC, the recommended dosoge in potients with o creotinine cleoronce less thon 50 ml/min is 150 mg every 24 hours. Should the potient's condition require, the frequency of dosing moy be increosed to every 12 hours even further with coution. Hemodiolysis reduces the level of circuloting ronitidine. Ideolly, the dosoge schedule should be odjusted so thot the timing of o scheduled dose coincides with the end of hemodiolysis.

HOW SUPPLIED: ZANTAC® 300 Toblets (ronitidine hydrochloride equivolent to 300 mg of ranitidine) ore yellow, capsule-shoped toblets embossed with "ZANTAC 300" on one side ond "Glaxo" on the other. They are ovoilable in bottles of 30 (NDC 0173-0393-40) ond unit dose packs of 100 toblets (NDC 0173-0393-47).

ZANTAC® 150 Toblets (ranitidine hydrochloride equivolent to 150 mg of ronitidine) ore white tablets embossed with "ZANTAC 150" on one side ond "Gloxo" on the other. They ore ovoiloble in bottles of 60 toblets (NDC 0173-0344-42) ond unit dose packs of 100 toblets (NDC 0173-0344-47).

Store between 15° ond 30°C (59° and 86°F) in a dry place. Protect from light. Replace cop securely after eoch opening.

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October 1986

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PELVIC INFLAMMATORY DISEASES IN ADOLESCENTS

(Continued from page 390)

ics. If there is a question regarding the diagnosis or the treatment plans are unsuccessful, laparoscopy should be used to identify the exact pathology.

The August 20, 1982 issue of Morbidity and Mortality Weekly Report presents the Center for Disease Control's treatment guidelines for sexually transmitted diseases, including PID. This topic is important for the clinician who treats teenagers. PID is the most significant sexually transmitted disease for the adolescent female of the 1980's.

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Marion E. Alberts, M.D.

The Editor Comments



Teenage Pregnancies

TEENAGE PREGNANCIES HAVE BECOME a national concern. More than 1 million American teenagers become pregnant each year, the highest rate of teenage pregnancy in the world. Rising rates of teenage pregnancy reflects the increase in the number of this age group who are sexually active. Studies show most teenage pregnancies are unintended. Other data indicate some teenagers become pregnant as an assertion of dependency or as an act of competing with or rebelling against parents. The entire problem, therefore, is very complex. The directions taken in the past, those being promulgated at present and the approaches of the future are likewise complex.

This issue of IOWA MEDICINE addresses the problems of teenage pregnancy and some approaches to solving them. This month's cover presents the pathetic picture of a girl torn between impending motherhood and attachments to childhood. A teddy bear is no match to an infant child. Playing house is no match to true motherhood. However, there is a glaring omission on the cover. Pregnancy is not just the problem of the young mother-to-be. The father of the unborn child is as much a part of the picture as the girl.

Too often, unintended teenage pregnancy is discussed only in terms of the impact upon the girl. That is a grossly incomplete approach. The great bulk of literature and counseling intended for such situations seem overwhelmingly directed to the girl; the boy seems relegated to an after-the-fact position. The girl is counseled to mobilize coping skills, accept information and emotional support, reach an informed decision about the pregnancy, make final decision with the least amount of regret and use the crisis as an opportunity for personal growth and self-reflection. These goals are presented in a paper by Jeanne Marecek, of Swarthmore College (a girl's school) in the January 1987 issue of *American Psychologist*. The paper, "Counseling Adolescents with Problem Pregnancies," is directed almost entirely to the girls. More direct approaches must be taken toward the responsibilities of the boys before and after the deed has been done. Cultural myths about the greater need of the male for sex and the false belief it is physically or psychologically dangerous for the girl not to satisfy a man's need must be dispelled. Other cultural myths need to be cast aside. There is a glaring discrepancy when it is shown 80% of teenage males and 70% of teenage females have experienced sexual intercourse.

Sex education and pregnancy counseling bring numerous ethical conflicts. Religious and moral beliefs are unfurled. Confidentiality is often a stumbling block. Some states have enacted statutes regarding parental notification. It is not an easy dilemma to solve.

We hope this issue of IOWA MEDICINE creates constructive thoughts for readers who must deal with this problem. Society must realize teenage pregnancy is a greater problem than many have imagined. The numbers are astounding. The cost to society is astronomical. It is the problem of parents, educators, legislators, the courts, physicians and above all, teenagers. No segment of society is free of responsibility in this major social issue. — M.E.A.

THE EDITOR COMMENTS

(Continued from page 393)

Physician Attire and Etiquette

I HEARD A COMMENT recently comparing the attire of physicians and attorneys. The comments lucidly described the dress of attorneys in their working environment (the court room) as being neat, well-groomed, not flamboyant — very professional to denote their mission. By contrast the commentator called attention to many physicians he has seen in hospitals in much different attire. He made reference to sneakers, blue jeans, dress shirts without neckties and absence of suits or better grade slacks and jackets.

A report in a recent issue of JAMA* alluded to the same subject. A majority of patients believe physicians should dress to fit their professional status. Sixty-five percent of the respondents agreed physicians should wear white coats when seeing patients; 52% said they should not wear jeans. Over a third said male physicians should wear ties and women should wear skirts or dresses.

The same survey considered doctor-patient etiquette. Only 10% of patients preferred to have physicians address them by their surnames. Seventy-four percent preferred to address the doctor by his title and surname.

The survey of house staff revealed 43% sometimes or always wear sneakers, and 82% of the women seldom or never wear dresses or skirts in lieu of slacks.

The researchers concluded " . . . physicians in training as well as senior physicians may wish to adjust their etiquette to meet the expectations of their more conservative patients. The physicians may prefer to adopt conservative habits to avoid displeasing a substantial segment of the patient population." — M.E.A.

* Dunn, JJ, *et al:* Patient and house offers attitudes on physician's attire and etiquette. JAMA, January 2, 1987, 257:65-68.

AMA Survey Results

Over half of physicians answering a recent AMA survey said their control over patient treatment decisions has decreased over the past several years.

For its 1987 Survey of Physician and Public Opinion on Health Care Issues, the AMA polled 1,000 physicians nationwide. Other survey results are:

- 58% agreed strongly that the quality of health care is being threatened by overemphasis on cost containment.
- 42% of respondents who treat Medicare patients said they feel unduly pressured to discharge those patients early from the hospital.
- 52% said the number of doctors is "about right"; 39% said there are too many doctors.
- 37% said they would consider practicing in an HMO or already do practice in an HMO; 56% of those practicing in an HMO said "access to patients" is the reason.
- 58% said they won't consider practicing in an HMO. "Loss of autonomy" was cited as the main reason.

The AMA also surveyed 1,506 adults nationwide:

- 67% cited cost as the main problem facing health care.
- 63% said doctors take a genuine interest in patients; 91% expressed satisfaction with their last doctor visit.
- 65% favor drug use screening for people in certain jobs.

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Richard M. Caplan, M.D.

CME Notebook



The Essentials of Education

TO QUOTE WITH TONGUE in cheek the surprisingly quotable Yogi Berra: "It's *deja vu* all over again." A statement has newly appeared, endorsed by 17 large, national educational organizations, on "The Essentials of Education." I say *deja vu* because I've several times seen and helped with efforts to stipulate such essentials. It's a tough challenge, getting the ideas and words sorted out just right for group agreement. Partly, the problem is to find just the right level of abstraction, especially if the statement is expected to have applicability across a wide spectrum of ages and educational circumstances.

For example, this particular document asserts that "educators agree that the overarching goal of education is to develop informed, thinking citizens capable of participation in both domestic and world affairs." How does that strike you as the overarching goal for *medical* education? If it seems *too* overarching, you might find more congenial and relevant to a medical education the document's further specification of the essentials — to "include, among others, the ability to use language, to think, and to communicate effectively; to use mathematical knowledge and methods to solve problems; to reason logically; to use abstractions and symbols with power and ease; to apply and to understand scientific knowledge and methods; to make use of technology and to understand its limitations; to express oneself through the arts and to understand the artistic expressions of others; to understand other languages and cultures; to understand spatial relationships; to apply knowledge about health, nutrition, and physical activity; to acquire the capacity to meet unexpected challenges; to make informed value judgments; to recognize and to use one's full learning potential; and to prepare to go on learning for a lifetime."

That appeals to me. Granted, it doesn't say *how* to use one's full potential or prepare for lifetime learning. And it doesn't spell out loads of other particulars, like knowing that $3 \times 7 = 21$. It does, though, enumerate major domains of knowledge, skills, and attitudes ("among others") that stimulate the enumeration of increasingly more detailed and operational goals.

If you re-read that list and ask yourself "Could this be an appropriate guide to my personal curriculum of CME?" You might think some objectives are OK and others expendable. I'd agree that the emphasis among them can vary, but I'd argue that each one is appropriate to one's continuing *medical* education as well as one's *general* education. The final one, though, is perhaps the key to them all. One's attitude about lifetime learning will help determine whether one anticipates the medical world of the future as *bad*, or rather, as *different*. I'm trying hard to be optimistic and encourage adaptability for myself and others. To adapt is to change, which means in large measure, to learn. So I can create a symmetry to this discussion by using another of Yogi Berra's aphorisms of redundant wisdom: "Your whole future lies ahead of you."

Dr. Caplan is Associate Dean for Continuing Medical Education at the University of Iowa College of Medicine.

Drug Therapy Review

REYNOLD SPECTOR, M.D., Editor

Antidotes in the Treatment of Acute Poisoning

ACUTE POISONING AND DRUG OVERDOSE are common medical emergencies seen in hospitals. These patients present a substantial diagnostic and therapeutic challenge; however, with proper management an excellent outcome can be achieved. Most experts recommend an integrated systematic approach to the management of poisoned or overdosed patients.[1,2] The major feature of this approach is the selection of treatment for the poisoned patient, based on careful diagnostic and prognostic assessment, that will result in the lowest attainable morbidty and mortality with a minimum level of risk. After general initial therapy (including attention to the patient's vital functions and decontamination), 3 categories of treatment are considered: (1) supportive care alone, (2) specific antidotal therapy, (3) active poison removal.[1] The focus of this article is on the use of specific antidotal therapy.

Specific antidotes are available for a relatively small number of drugs and poisons. There were 900,531 human poison exposures reported by 56 poison control centers in the United States in 1985, 199,013 patients received treatment in a health care facility, and only 7,560 of these patients received specific antidotal therapy.[3] The administration of N-acetylcysteine (2,743 patients) and naloxone (2,189 patients) accounted for the majority of antidotal therapy. Even though antidotes are not frequently used in therapy, when properly selected and appropriately used, they are generally safe, cost-effective, and may be lifesaving. However, as with all forms of therapy, in the processes of considering antidotal therapy the potential risks must be considered in conjunction with the potential benefits. In some cases the potential risks are very small and it is reasonable to administer the antidote even when the potential for benefit is uncertain, for example, administration of naloxone in a comatose patient with no confirmation of opioid toxicity as the cause. In other cases, such as administration of physostigmine or various antivenins, the potential for severe toxicity from the antidote precludes its use unless specific strict criteria are met. There is a natural tendency for health care professionals to prefer taking active antidotal measures if at all possible, but this is not always appropriate. An illustration of this point is in the treatment of barbiturate poisoning; it has been shown that the death rate from barbiturate poisoning was reduced when the use of respiratory stimulant drugs was discontinued.[4]

In general, there are 5 primary mechanisms by which antidotes may work: (1) specifically reversing the pharmacologic effect of the poison, (2) preventing organ toxicity by interfering with the metabolism of the poison or binding to the poison or a toxic metabolite, (3) reversing or overcoming enzyme inhibition caused by the poison, (4) forming a drug-chelator complex that is relatively harmless and is excreted in the urine, (5) forming a drug-antibody complex that is relatively harmless and is excreted in the urine (adapted from Reference 5). Table 1 lists common antidotes with the drug or poison for which they are used

(Please turn to page 398)

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(Continued from page 396)

and the proposed mechanism of antidotal action. The numbers in parentheses under the mode of action column refer to the 5 mechanisms listed above.

Antidotes

The use of several common antidotes is reviewed in more detail below. In most cases only aspects of treatment of the poisoned patient that *specifically* relate to the *antidote* will be discussed and the reader is reminded that other forms of treatment (i.e., decontamination, supportive care, active poison removal) must be considered.

Naloxone

Naloxone hydrochloride (Narcan®, DuPont) is a competitive antagonist at all opioid receptor sites and is devoid of agonistic effects. Respiratory depression, coma, and seizures associated with opioid poisoning are rapidly reversed by naloxone. The drug is an effective antidote for all natural and semisynthetic opioid derivatives including alphaprodine, buprenorphine, butorphanol, codeine, dextromethorphan, diphenoxylate, fentanyl, heroin,

TABLE 1*

Antidote	*Poison*	*Mode of Action*	
Acetylcysteine	Acetaminophen	Glutathione stimulant or sulfhydryl donor	(2)
Alpha- and beta-adrenoreceptor blockers	Sympathomimetics	Antagonist	(1)
Atropine	Cholinesterase inhibitors	Acetylcholine antagonist	(1)
Botulism antitoxin	*Clostridium Botulinum* Types A, B, and E	Antibody	(5)
Cyanide antidote kit (nitrites & sodium thiosulfate)	Cyanide	Competitive binding of cyanide and conversion to non-toxic thiocyanate	(2)&(3)
Deferoxamine	Iron salts	Chelating agent	(4)
Digoxin Fab antibody fragments	Digoxin and digitoxin	Antibody	(5)
Dimercaprol	Heavy metals	Chelating agent	(4)
Diphenhydramine	Phenothiazines (dystonic reactions only)	Possibly anticholinergic	(1)
Edetate calcium disodium	Heavy metals	Chelating agent	(4)
Ethanol	Methanol, ethylene glycol	Competitive substrate	(2)
Glucagon	Beta-adrenoreceptor blocking agents	Stimulates myocardial adenylcyclase	(1)
Leucovorin calcium	Methotrexate	Enzyme substrate	(3)
Methylene blue	Methemoglobinemia	Enzyme cofactor	(1)
Naloxone	Narcotics	Antagonist	(1)
Oxygen	Carbon monoxide, cyanide, methemoglobinemia	Enhances toxin excretion and reduces hypoxia	(1)&(2)
Penicillamine	Heavy metals	Chelating agent	(4)
Physostigmine	Anticholinergic agents	Anticholinesterase	(1)
Phytonadione	Warfarin type anticoagulants	Antagonist	(3)
Pralidoxime	Organophosphate insecticides	Cholinesterase reactivator	(3)
Pyridoxine	Isoniazid	Enzyme substrate	(3)

*See text for codes.

hydrocodone, hydromorphone, levorphanol, loperamide, meperidine, methadone, morphine, nalbuphine, oxycodone, oxymorphone, pentazocine, and propoxyphene. Since naloxone does not depress the central nervous system and does not antagonize other CNS depressants such as barbiturates, benzodiazepines, or alcohol, it is useful as a diagnostic agent to rule out opioid poisoning in comatose patients with unknown drug ingestions. Naloxone is nontoxic even with doses 10 to 20 times larger than the usually recommended doses. However, narcotic withdrawal symptoms are likely to occur in patients physically dependent to opioids. These symptoms last for 15 to 30 minutes after a recommended dose and usually do not interfere with patient management.

The usual initial naloxone dose for narcotic overdose is 0.4 mg to 2 mg in children and adults, administered as an intravenous bolus. Clinical response occurs within 2 to 3 minutes. Additional doses should be given at 2- to 3-minute intervals as needed to adequately reverse coma and respiratory depression. Patients who have overdosed with propoxyphene, buprenorphine, pentazocine, or large doses of other opioids may require larger naloxone doses. If no response is observed after 10 mg of naloxone is given, the diagnosis of narcotic toxicity should be questioned. Naloxone's duration of action is much shorter than most of the opioids it antagonizes. The duration of action is 30 to 45 minutes in patients with severe opioid poisoning and up to 1 to 2 hours in milder cases; therefore, repeated doses are usually necessary. A continuous infusion may be prepared by adding naloxone to an appropriate volume of 5% dextrose in water. Give two-thirds of the initial bolus dose per hour and adjust the infusion rate as needed to assure adequate ventilation.

Acetylcysteine

Acetylcysteine (Mucomyst®, Mead Johnson), originally marketed as a solution for inhalation, now has FDA-approved labeling for use to avert hepatotoxicity from acetaminophen poisoning. Although free of significant adverse effects in therapeutic doses, acetaminophen causes hepatocellular necrosis in toxic overdose. In general, any intentional overdose taken by an adult or any dose greater than 200 mg/kg should be treated as a toxic dose until proven otherwise by plasma acetaminophen levels. Plasma acetaminophen levels should be interpreted with the Rumack-Matthew nomogram to assess the potential for hepatotoxicity and the subsequent need for acetylcysteine therapy.[6]

After therapeutic doses, acetaminophen is primarily metabolized by sulfation and glucuronidation. A small fraction is converted to a reactive metabolite by the cytochrome P-450 mixed function oxidase enzymes. The small amount of reactive metabolite normally produced is detoxified by conjugation with glutathione and is excreted in the urine. In a toxic overdose much larger quantities of reactive metabolite are produced that exhaust the glutathione reserves. The excess metabolite then covalently binds to hepatic cell proteins and enzymes causing cell damage and death. Acetylcysteine prevents hepatocellular necrosis by supplying a sulfhydryl amino acid to stimulate glutathione synthesis and/or supply additional sulfhydryl groups to bind directly with the reactive metabolites.

Acetylcysteine should be given as soon as possible in cases of potential acetaminophen poisoning. However, liver damage is generally prevented if it is given within 8 to 10 hours and partial protection is provided when given within 16 to 20 hours post acetaminophen ingestion. The dosing schedule for acetylcysteine consists of an oral loading dose of 140 mg/kg followed by 70 mg/kg orally every 4 hours for 17 doses. If activated charcoal has been given within 1 hour prior to the loading dose of acetylcysteine, it would be appropriate to increase the acetylcysteine dose by 25%. If a dose of acetylcysteine is vomited within 1 hour of administration, it should be repeated. Dilution to a 5% concentration with a soft drink or fruit juice is recommended because the available solution was not intended for oral use and is unpalatable. Intravenous administration of acetylcysteine is equally effective but anaphylactoid reactions and 1 death are reported. Intravenous administration is only indicated when oral and nasogastric administration are unsuccessful and plasma acetaminophen levels in the toxic range have been documented.

(Please turn to page 401)

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DRUG THERAPY REVIEW

(Continued from page 399)

Digoxin-Specific Antibody Fragments

Digoxin immune Fab (Ovine) (Digibind®, Burroughs-Wellcome) are digoxin-specific antibody fragments useful in the treatment of digoxin or digitoxin poisoning. Digoxin immune Fab is indicated to treat potentially life-threatening digoxin or digitoxin intoxication. Patients with cardiac rhythm disturbances, such as complete heart block and hemodynamically compromising arrhythmias or hyperkalemia (>5.0 mEq/L) that do not respond to standard therapy, should be considered candidates for digoxin immune Fab.[7] This product is not indicated in milder digitalis intoxication. No known contraindications to digoxin immune Fab exist. However, in the absence of experience with repeated therapy, hypersensitivity reactions are theoretically possible.

The ideal digoxin immune Fab dose is equimolar to the amount of digoxin to be neutralized. Each vial contains 40 mg of lyophilized digoxin Fab antibody, which will bind approximately 600 mcg of digoxin. The product labeling that is supplied with digoxin immune Fab should be consulted for dosage guidelines. It is very complete and contains detailed dosing tables based upon total digoxin dose or digoxin serum level. Digoxin immune Fab is currently in extremely short supply. Select hospitals and poison control centers in the United States have been allocated 12 vials each. The University of Iowa Hospitals and Clinics is one of the hospitals to receive digoxin immune Fab. The manufacturer does not expect to have this product readily available until late summer.

Ethanol

Ethanol is a useful adjunct in treating ethylene glycol and methanol poisoning.[8] Metabolites of ethylene glycol and methanol are primarily responsible for their toxicity. The methanol metabolites, formaldehyde and formic acid, cause optic nerve degeneration and acidosis. The ethylene glycol metabolites — glycoaldehyde, glycolate, oxalate, and lactate — cause kidney damage and acidosis. Methanol and ethylene glycol are primarily cleared by hepatic alcohol dehydrogenase. Ethanol reduces clearance and metabolite formation from these 2 compounds by competing for alcohol dehydrogenase.

Hemodialysis is the treatment of choice for severe methanol and ethylene glycol poisoning as metabolites and parent compounds are rapidly cleared. Administering ethanol delays formation of the metabolites and therefore lessens toxicity until dialysis can be initiated. Ethanol is usually given IV as 10% v/v solution in 5% dextrose. Concentrations above 10% are excessively hypertonic and below 10% require excessive fluid volume to infuse the required dose. A loading dose of 7.6 to 10 ml/kg IV of 10% ethanol in 5% dextrose solution infused over 20 minutes usually achieves the desired 100 to 130 mg/dl blood ethanol concentration. If the intravenous route is not feasible, give 0.8 to 1.0 ml/kg of 95% ethanol orally diluted in 200 ml orange juice over 30 minutes. Maintenance dosing varies greatly and requires intense blood ethanol monitoring and patient support as needed. Ethanol contributes to methanol and ethylene glycol-induced central nervous system depression and acidosis. It may also cause hypoglycemia, particularly in children.

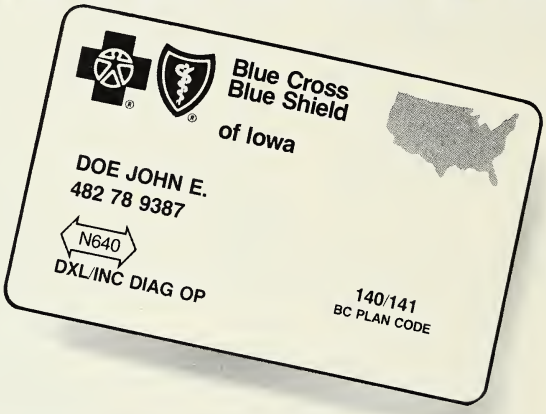
Pyridoxine

Pyridoxine hydrochloride (vitamin B6) is a useful antidote primarily in the treatment of isoniazid poisoning. It may also be antidotal for ingestion of false morel and other monomethylhydrazine-containing mushrooms (*Gyromitra* species). Central nervous system symptoms of poisoning by various hydrazine compounds, which are primarily found in industry and in rocket fuel, may also respond to pyridoxine.

Isoniazid (INH) in toxic doses inhibits brain pyridoxal-5-phosphate, the active form of vitamin B6. Pyridoxal-5-phosphate is a coenzyme for the enzymes glutamic acid decarboxylase and gamma-aminobutyric acid transaminase, which participate in the synthesis and degradation of gamma-aminobutyric acid (GABA), respectively. Seizures seen in INH poisoning are believed to be related to decreased brain GABA levels. Lactic acidosis commonly seen in INH poisoning is secondary to seizure activity. A lethal INH dose is thought to be 80 to 150 mg/kg.

(Please turn to page 403)

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(Continued from page 401)

In patients with severe isoniazid toxicity, represented by seizures and acidosis, pyridoxine hydrochloride may be given IV push until seizures are controlled. The desired pyridoxine dose is 1 gram for each gram of INH ingested. Initially up to 5 grams of pyridoxine hydrochloride should be given intravenously over 30 to 60 minutes. This may be repeated as necessary until seizures are controlled. Other standard treatment for seizures, correction of acidosis, and supportive care should also be employed. Once seizures are controlled the remainder of the pyridoxine hydrochloride (to give a total dose equal to the estimated INH dose) may be diluted in D5W and infused over 1 to 2 hours.

The maximum tolerated dose of pyridoxine hydrochloride is unknown. Wason *et al.* report administering 70 mg/kg to 357 mg/kg of pyridoxine hydrochloride for the treatment of INH poisoning in a series of 5 patients.[9] No adverse effects of pyridoxine were noted.

Glucagon

Glucagon is useful in reversing negative inotropic and chronotropic effects associated with beta-adrenergic blocker overdose.[10] Other drugs that are useful in the treatment of beta-blocker overdose are isoproterenol, atropine, and dopamine. A transvenous pacemaker may need to be inserted if heart block or severe bradycardia cannot be readily controlled by pharmacologic means.

Glucagon augments contractility in the face of beta-blockade by activating the adenylcyclase system at a different site than isoproterenol, thereby circumventing the negative inotropic and possible chronotropic effect of the beta-blocker. Glucagon is particularly useful in severe beta-adrenergic poisoning because resistance to isoproterenol may occur. Myocardial depression and hypotension may be treated with an initial glucagon bolus of 50-150 mcg/kg (usually about 10 mg in adults) given IV over 1 minute followed with a continuous IV infusion of 1 to 5 mg/hr. When these large glucagon doses are administered, reconstitute and dilute glucagon with 5% dextrose or normal saline to avoid giving excessive phenol present in the glucagon diluting fluid. Glucagon is relatively free of serious side effects when used to treat beta-blocker overdose; however, nausea and vomiting may occur and serum glucose and potassium should be monitored.

Methylene Blue

Methylene blue is an antidote useful for reversing methemoglobinemia.[11] Methemoglobin is formed when the iron molecule in hemoglobin is oxidized from the ferrous (Fe2+) to the ferric (Fe3+) form. Methemoglobin is incapable of binding oxygen for transport and delivery to tissue.

Cyanosis is evident with a methemoglobin level of 15% to 20% of the total hemoglobin. However, symptoms of hypoxia may not be present unless other factors such as anemia are involved. Symptoms of headache, lethargy, dizziness, fatigue, and dyspnea can occur with 20% to 45% methemoglobin, and increasing central nervous system depression occurs with higher concentrations. Respiratory depression, seizures, cardiac arrhythmias, metabolic acidosis, and coma are possible with methemoglobin concentrations greater than 55%. Fatalities occur with methemoglobin levels greater than 70%.

Methylene blue is generally indicated in patients with methemoglobin of 30% or greater, or with methemoglobinemia and symptoms of hypoxia unresponsive to oxygen. The usual methylene blue dose is 1 to 2 mg/kg (0.1 to 0.2 ml/kg of the 1% solution) given intravenously over 5 minutes. Symptoms of hypoxia should improve within several minutes to 1 hour. Additional doses may be given. However, the total dosage should not exceed 7 mg/kg. With excessive doses, methylene blue acts as an oxidant and can cause methemoglobinemia. Other side effects seen with high doses of methylene blue include mild hemolysis (rarely severe hemolytic anemia), restlessness, apprehension, tremors, dysuria, and transient blue color in the urine and skin. Patients with NADPH methemoglobin reductase deficiency (rare) will not respond to methylene blue. Patients with G-6-PD deficiency will also not respond to methylene blue and these individuals are much more susceptible to hemolysis induced by methylene blue. In severe unresponsive cases hyperbaric oxygen (if available) or exchange transfusion should be considered.

(Please turn to page 404)

DRUG THERAPY REVIEW

(Continued from page 403)

Conclusions

Antidotes are available for the treatment of poisoning caused by some drugs and chemicals. When properly selected and appropriately used in combination with other standard therapy, antidotal therapy can produce dramatic results and may reduce morbidity and mortality caused by accidental or intentional poisoning. It is therefore essential for health professionals involved in the treatment of poisoned patients to have a good knowledge of the available antidotes to ensure that they will be administered in a timely manner when indicated and also to avoid inappropriate use. — PHILLIP G. LANGE, PHARM.D., *Clinical Pharmacist*, and KEVIN MOORES, PHARM.D., *Supervisor, Drug Information/Poison Control Center, Department of Pharmacy.*

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TRUE	FALSE	
_____	_____	**I can increase, decrease, or stop premium payments without affecting my coverage.**
_____	_____	**I can change my coverages without buying additional policies.**
_____	_____	**I can obtain 10% to 11% tax-deferred interest on my existing cash values.**
_____	_____	**I can withdraw my cash tax-free without charge.**
_____	_____	**I have maximum protection from my existing policies.**

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STATISTICAL SERVICES UNIT

IOWA DEPARTMENT OF PUBLIC HEALTH

RE: DEATH CERTIFICATE # _____ DATE OF DEATH: _____

DECEDENT NAME: _____

LOCATION OF DEATH: _____

Doctor:

The certificate in this office contains the following cause of death:

PART I. DEATH WAS CAUSED BY (ENTER ONLY ONE CAUSE PER LINE FOR (A), (B), AND (C))		APPROXIMATE INTERVAL BETWEEN ONSET AND DEATH
18	IMMEDIATE CAUSE	
CONDITIONS, IF ANY, WHICH GIVE RISE TO IMMEDIATE CAUSE (A), STATING THE UNDERLYING CAUSE LAST	(A) _____ DUE TO, OR AS A CONSEQUENCE OF	
	(B) _____ DUE TO, OR AS A CONSEQUENCE OF	
	(C) _____	

PART 11A. OTHER SIGNIFICANT CONDITIONS CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO CAUSE GIVEN IN PART I (A)	B. IF FEMALE, WAS THERE A PREGNANCY IN THE PAST 6 MONTHS YES ☐ NO ☐	AUTOPSY (YES OR NO) 19A.	IF YES, WERE FINDINGS CONSIDERED IN DETERMING CAUSE OF DEATH 19B

ACCIDENT, SUICIDE, HOMICIDE, OR UNDETERMINED (SPECIFY) 20A	DATE OF INJURY (MONTH, DAY, YEAR) 20B	HOUR 20C. M	HOW INJURY OCCURRED (ENTER NATURE OF INJURY IN PART I OR PART II, ITEM 18) 20D
INJURY AT WORK (SPECIFY YES OR NO) 20E	PLACE OF INJURY AT HOME, FARM, STREET, FACTORY, OFFICE BLDG., ETC (SPECIFY) 20F	LOCATION 20G	(STREET OR R F D NO., CITY OR TOWN, COUNTY, STATE)

The information requested below is needed to make the record more complete and for the selection of underlying cause of death according to the International Classification of Diseases, Ninth Revision.

_____ _____

SIGNATURE OF CERTIFIER DATE SIGNED

A prompt reply will be appreciated use the enclosed self-addressed envelope.

Sincerely,

Jerry McDowell
Statistical Services Unit
Tel. (515) 281-4945

CPF-19538 568-0104

(Continued from page 407)

20a thru 20g). If the information is unknown for any item, enter unknown. It is most important to designate whether the trauma was an accident, homicide, suicide, or undetermined (20a). Likewise, completing Item 20d — how the injury occurred — is very important. How the trauma occurred will be the underlying cause of death. For example, a fractured hip may be the cause of death, but, if the fracture was caused by a fall, the underlying cause of death would be the fall.

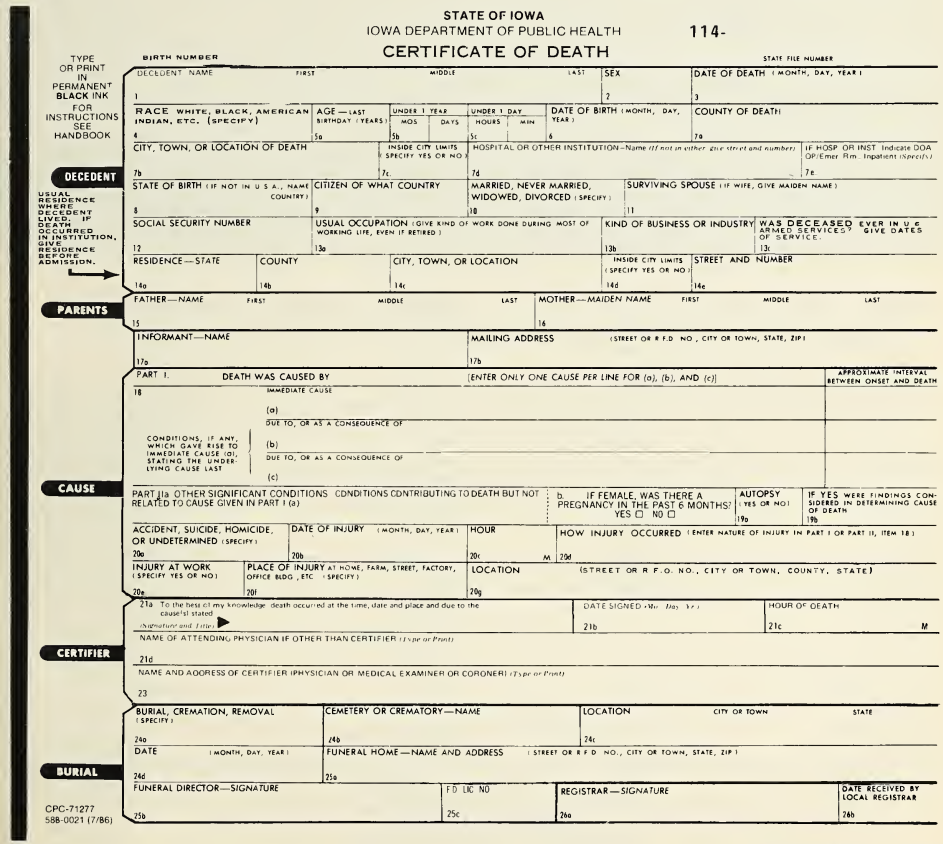
For gunshot wound deaths, it is important to specify the type of gun that was used for proper code classification (For Example: handgun, hunting rifle, shotgun, or military firearm).

Deaths due to "aspiration" are considered traumatic deaths so Items 20a thru 20g should be completed.

Drowning deaths require information on how the drowning occurred (20d). They could be due to a boating accident, swimming, etc.

All deaths involving trauma also need the question "at work" (Item 20e) completed, even though it may be self-apparent.

(Please turn to page 410)



STATE OF IOWA
IOWA DEPARTMENT OF PUBLIC HEALTH 114-
CERTIFICATE OF DEATH

TYPE OR PRINT IN PERMANENT BLACK INK
FOR INSTRUCTIONS SEE HANDBOOK

BIRTH NUMBER — STATE FILE NUMBER

DECEDENT — NAME (FIRST, MIDDLE, LAST) | 1 | SEX | 2 | DATE OF DEATH (MONTH, DAY, YEAR) | 3

RACE (WHITE, BLACK, AMERICAN INDIAN, ETC. (SPECIFY)) | 4 | AGE — LAST BIRTHDAY (YEARS) | 5a | UNDER 1 YEAR (MOS / DAYS) | 5b | UNDER 1 DAY (HOURS / MIN) | 5c | DATE OF BIRTH (MONTH, DAY, YEAR) | 6 | COUNTY OF DEATH | 7a

CITY, TOWN, OR LOCATION OF DEATH | 7b | INSIDE CITY LIMITS (SPECIFY YES OR NO) | 7c | HOSPITAL OR OTHER INSTITUTION — Name (If not in either, give street and number) | 7d | IF HOSP OR INST Indicate DOA OP/Emer Rm. Inpatient (Specify) | 7e

DECEDENT

STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY) | 8 | CITIZEN OF WHAT COUNTRY | 9 | MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (SPECIFY) | 10 | SURVIVING SPOUSE (IF WIFE, GIVE MAIDEN NAME) | 11

USUAL RESIDENCE WHERE DECEDENT LIVED (IF DEATH OCCURRED IN INSTITUTION, GIVE RESIDENCE BEFORE ADMISSION.)

SOCIAL SECURITY NUMBER | 12 | USUAL OCCUPATION (GIVE KIND OF WORK DONE DURING MOST OF WORKING LIFE, EVEN IF RETIRED) | 13a | KIND OF BUSINESS OR INDUSTRY | 13b | WAS DECEASED EVER IN U.S. ARMED SERVICES? GIVE DATES OF SERVICE | 13c

RESIDENCE — STATE | 14a | COUNTY | 14b | CITY, TOWN, OR LOCATION | 14c | INSIDE CITY LIMITS (SPECIFY YES OR NO) | 14d | STREET AND NUMBER | 14e

PARENTS

FATHER — NAME (FIRST, MIDDLE, LAST) | 15 | MOTHER — MAIDEN NAME (FIRST, MIDDLE, LAST) | 16

INFORMANT — NAME | 17a | MAILING ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP) | 17b

CAUSE

PART I. DEATH WAS CAUSED BY (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c)) | 18 | APPROXIMATE INTERVAL BETWEEN ONSET AND DEATH

IMMEDIATE CAUSE (a)
DUE TO, OR AS A CONSEQUENCE OF (b)
DUE TO, OR AS A CONSEQUENCE OF (c)

CONDITIONS, IF ANY, WHICH GAVE RISE TO IMMEDIATE CAUSE (a), STATING THE UNDERLYING CAUSE LAST

PART IIa OTHER SIGNIFICANT CONDITIONS CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO CAUSE GIVEN IN PART I (a) | 19a | b. IF FEMALE, WAS THERE A PREGNANCY IN THE PAST 6 MONTHS? YES ☐ NO ☐ | AUTOPSY (YES OR NO) | 19b | IF YES WERE FINDINGS CONSIDERED IN DETERMINING CAUSE OF DEATH | 19b

ACCIDENT, SUICIDE, HOMICIDE, OR UNDETERMINED (SPECIFY) | 20a | DATE OF INJURY (MONTH, DAY, YEAR) | 20b | HOUR | 20c M | HOW INJURY OCCURRED (ENTER NATURE OF INJURY IN PART I OR PART II, ITEM 18) | 20d

INJURY AT WORK (SPECIFY YES OR NO) | 20e | PLACE OF INJURY AT HOME, FARM, STREET, FACTORY, OFFICE BLDG., ETC. (SPECIFY) | 20f | LOCATION (STREET OR R.F.D. NO., CITY OR TOWN, COUNTY, STATE) | 20g

CERTIFIER

21a To the best of my knowledge death occurred at the time, date and place and due to the cause(s) stated
Signature and Title ▶ | DATE SIGNED (Mo. Day, Yr.) | 21b | HOUR OF DEATH | 21c M

NAME OF ATTENDING PHYSICIAN IF OTHER THAN CERTIFIER (Type or Print) | 21d

NAME AND ADDRESS OF CERTIFIER (PHYSICIAN OR MEDICAL EXAMINER OR CORONER) (Type or Print) | 23

BURIAL

BURIAL, CREMATION, REMOVAL (SPECIFY) | 24a | CEMETERY OR CREMATORY — NAME | 24b | LOCATION (CITY OR TOWN, STATE) | 24c

DATE (MONTH, DAY, YEAR) | 24d | FUNERAL HOME — NAME AND ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP) | 25a

FUNERAL DIRECTOR — SIGNATURE | 25b | F.D. LIC. NO. | 25c | REGISTRAR — SIGNATURE | 26a | DATE RECEIVED BY LOCAL REGISTRAR | 26b

CPC-71277
588-0021 (7/86)

IOWA DEPARTMENT OF PUBLIC HEALTH

(Continued from page 409)

The cause of death section of the death certificate should be checked carefully before signing. Remember, you are certifying a cause of death. You have 72 hours to complete and sign the death certificate after you have received it from the funeral director.

Queries are sent to physicians when the cause of death is incomplete or when additional information may affect the underlying cause of death (Figure 2). The query form is designed so a physician can complete it in a minimum of time. Only checked items need to be completed. If the question(s) can not be answered please indicate on the form. Physicians can indicate whether they want their answer to the query to be added to the original certificate. Since the physician has already signed the record certifying the cause of death as stated, his/her permission is also required for any new information to be added. When answering the query, do not send discharge summaries, autopsy reports, etc. All that is needed is the answer to the query. If you get a query, please respond to it as quickly as possible.

These guidelines will help physicians complete the cause of death on the death certificate. If more information is needed, please contact Jerry McDowell, Iowa Department of Public Health, Lucas State Office Building, Des Moines, Iowa 50319, Telephone 515/281-4945. Mr. McDowell is also available to speak to physician's groups.

June 1987 Morbidity Report

Disease	June 1987 Total	1987 to Date	1986 to Date	Most June Cases Reported From These Counties
Aids	3	20	9	NA
Amebiasis	2	16	21	Howard, Story
Brucellosis	1	3	1	Benton
Chickenpox	650	7480	6600	Scattered
Campylobacter	41	136	132	Scattered
Cytomegalovirus	1	9	12	Polk
Eatons Agent Infection	4	37	5	Black Hawk, Keokuk, Pottawatamie, Wapello
Encephalitis, viral	0	1	4	
Erythema Infectiosum	87	875	260	Scattered
Gastroenteritis (GIV)	683	10736	11626	Scattered
Giardiasis	32	128	150	Scattered
Hepatitis, A	14	75	26	Scattered
Hepatitis, B	15	69	44	Scattered
Hepatitis, Non A-B	0	14	14	
Hepatitis type unspecified	0	3	0	
Herpes Simplex	95	599	608	Scattered
Herpes Zoster	0	2	0	
Histoplasmosis	2	9	14	Black Hawk, Polk
Infectious mononucleosis	7	130	152	Scattered
Influenza, lab confirmed	0	67	247	
Influenza-like illness (URI)	1146	24615	71629	Scattered
Legionellosis	0	5	6	
Malaria	0	2	1	
Meningitis				
aseptic	1	14	17	Scott
bacterial	8	47	46	Scattered
meningococcal	0	3	10	
Mumps	46	354	14	Scattered
Pertussis	2	8	9	Fayette, Polk
Rabies in animals	26	158	93	Scattered
Reye Syndrome	0	0	0	
Rheumatic Fever	0	2	6	
Rubella (German measles)	0	1	1	
Measles	0	0	32	
Salmonellosis	14	71	66	Scattered
Shigellosis	2	11	4	Black Hawk
Toxic Shock Syndrome	1	3	4	Polk
Tuberculosis				
total ill	7	19	13	Scattered
bact. pos.	7	19	13	Scattered
Typhoid Fever	0	0	1	
Venereal diseases:				
Gonorrhea	259	1488	1742	Scattered
Chlamydia	303	1736	1160	Scattered
Syphilis	2	11	7	Page, Polk



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1001 Grand Avenue / West Des Moines, Iowa / Telephone 515-223-1401

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About Iowa Physicians

New officers of the Pottawattamie-Mills County Medical Society are — **Dr. Philip W. Meyer,** president; **Dr. Behrouz Rassekh,** president-elect; **Dr. Gary D. DeVoss,** vice president; and **Dr. Alan R. Fisher,** secretary-treasurer. All are Council Bluff physicians. **Dr. Edward C. Piller,** Red Oak, was the guest speaker at a meeting of Red Oak's Essex Commercial Club. His topic: Rising Malpractice Insurance Rates. **Dr. Rodney H. Miller,** Sac City, recently celebrated his 25th year in family practice in Sac City. Dr. Miller received the M.D. degree at the U. of I. College of Medicine; served his internship at King County Hospital in Seattle, Washington and his surgery residency at St. Joseph Mercy Hospital in Mason City. He began medical practice in Sac City in 1961. New officers of Lee County Medical Society are — **Dr. Stanley Hartanowicz,** Keokuk, president; **Dr. Artemio Santiago,** Fort Madison, vice president; and **Dr. Min Chung,** Keokuk, secretary-treasurer.

Dr. Keith L. Hansen, Hampton, was elected president of the Iowa Osteopathic Medical Association at its 91st annual convention and scientific seminar. Dr. Hansen has served on many statewide committees — including Iowa Osteopathic Medical Association — Iowa Medical Society Joint Task Force on Liability Reform, Provider's Committee of the Iowa

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ABOUT IOWA PHYSICIANS

(Continued from page 413)

Foundation for Medical Care and Committee on Medicaid Reimbursement for the Iowa Department of Human Services. **Dr. Joan Nilles** has joined the Family Health Center in Storm Lake. Dr. Nilles received the M.D. degree at the U. of I. College of Medicine and completed her family practice residency in Waterloo. Prior to locating in Storm Lake, she practiced in Sheldon. **Dr. Kennedy C. Fawcett,** Ames, has been elected Governor of the Iowa Chapter of the American College of Physicians of Internal Medicine. Dr. Fawcett is one of 72 governors elected throughout the U.S. and will serve 4 years. **Dr. James Bloom** has opened a family practice in Nashua. Dr. Bloom received the M.D. degree at the U. of I. College of Medicine. Prior to locating in Nashua, Dr. Bloom practiced in Charles City and Prairie du Chien, Wisconsin.

Dr. Paul K. Ho has joined Drs. Robert F. Breedlove and Peter D. Wirtz in the practice of orthopaedic surgery in Des Moines. Dr. Ho received the M.D. degree at New York Medical College; served his orthopaedic residency at Columbia Presbyterian Medical Center in New York; and a hand surgery fellowship at Raymond M. Curtis Hand Center in Baltimore, Maryland. **Dr. Stanley M. Haugland,** Des Moines, has been appointed chairman of the Iowa Chapter of the American Medical Society on Alcoholism and Other Drug Dependencies. **Dr. Sohan Singh Hayreh,** professor of ophthalmology at the U. of I. College of Medicine, has been awarded the degree of Doctor of Science by the University of London for research contributions dealing with ocular circulation in health and disease and optic nerve disorders. Dr. Hayreh is the first ophthalmologist to receive the Doctor of Science degree, the highest degree awarded by the University of London. **Dr. Charles H. Gutenkauf,** Des Moines, was awarded the Laureate Award from the Iowa Chapter of the American College of Physicians. The award acknowledges Dr. Gutenkauf for his role in developing the Coronary Care Unit at Iowa Methodist Medical Center in the 1960's. **Dr. Ernst O. Theilen,**

professor in the Department of Medicine at the U. of I. College of Medicine, also received the Laureate Award for his active involvement in the development of the Coronary Care Unit at University Hospitals.

Dr. Craig Bainbridge, Sioux City, was the guest speaker at the spring meeting of the Woodbury County Medical Society. Dr. Bainbridge spoke on "Newer Diagnostic Techniques in Lung Cancer."

Deaths

Dr. Merle J. Brown, 82, Davenport, died March 19 at Ridgecrest Health Wing. Dr. Brown received the M.D. degree at the U. of I. College of Medicine; interned at City Hospital in Akron, Ohio and served his surgery residency at the University of Pennsylvania. He was a member of the Iowa Academy of Surgery; Iowa Clinical Surgical Society and life member of the Iowa Medical Society.

Dr. Thomas D. Clark, 84, Iowa City, died April 3 at Atrium Village in Hills, Iowa. Dr. Clark received the M.D. degree at Loyola University in Chicago. He began medical practice in Victor in 1928, retiring in 1952. He then joined the staff of the Veterans Administration Medical Center in Knoxville, retiring in 1972.

Dr. Dean F. Koob, 58, Algona, died April 13. Dr. Koob received the M.D. degree at the U. of I. College of Medicine; interned and served his residency in Akron, Ohio. He joined Dr. John Schutter in Algona in 1961. He was a recipient of the Iowa High School Athletic Association Team Doctor of the Year Award;

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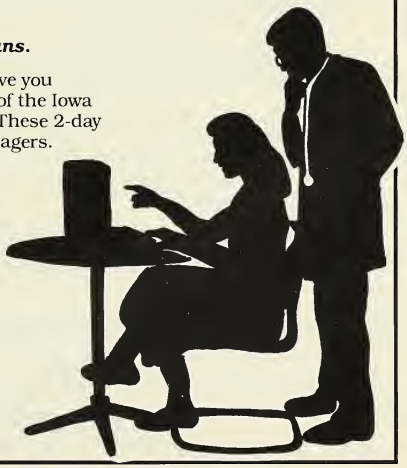
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ABOUT IOWA PHYSICIANS

(Continued from page 415)

past president of the Algona Chamber of Commerce and member of the American Association of Family Practice.

Dr. Dorothy J. Heuermann, 60, Hampton, died April 14 at St. Joseph Mercy Hospital in Mason City. Dr. Heuermann received the M.D. degree at the U. of I. College of Medicine. She began medical practice in Latimer in 1951; joined the Hampton Clinic in 1974; and in 1980 became an associate physician at the Franklin Medical Center Park Clinic.

Dr. Richard C. Porter, 71, West Des Moines, died May 9 at Iowa Methodist Medical Center in Des Moines. Dr. Porter received the M.D. degree at the U. of I. College of Medicine. He began medical practice in Des Moines in 1946.

Dr. Victor K. Nakashima, 77, Dubuque, died May 22 at St. Joseph's Unit of Mercy Health Center. Dr. Nakashima received the M.D. degree and served his otolaryngology residency at the University of Oregon Medical School. He joined Medical Associates Clinic in Dubuque in 1952, retiring in 1979. Dr. Nakashima was a life member of the Iowa Medical Society.

Dr. Lawrence C. Orton, 66, Mason City, died May 26 at St. Joseph's Mercy Hospital in Mason City. Dr. Orton received the M.D. degree at the U. of I. College of Medicine and interned at Balboa Naval Hospital in San Diego, California. Dr. Orton began family practice in Mason City in 1951. He was a member and fellow of the American Academy of Family Practice; former president of Winnebago Council of Boy Scouts and former chief of staff at St. Joseph's Mercy Hospital. Dr. Orton was also a recipient of the Silver Beacon, the highest award given on the council level of Boy Scouts.

Dr. Roy J. Hassebroek, 55, longtime Orange City physician, died June 6 at an Orange City hospital. Dr. Hassebroek received the M.D. degree at the U. of I. College of Medicine and interned at Broadlawns Medical Center in Des Moines. He began medical practice in Orange City in 1959. Dr. Hassebroek was chairman of the Sioux County Board of Health; former president and secretary-treasurer of the Sioux County Medical Society and member of the American Academy of Family Practice. An emergency medical technician instructor at Northwest Iowa Technical College, he served as Sioux County medical examiner for many years and was a recipient of the Governor's Volunteer Award.

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In the Public Interest

A Call To Action

AMERICA'S ADOLESCENTS are America's future, but that future is in peril.

Teenage pregnancy is one of several tragic problems plaguing our youth, underscoring what organized medicine calls "an urgent need for action." According to the American Medical Association, the incidence of illness and death among adolescents is 11% higher than it was 20 years ago. This statistic is alarming in an age when mortality and morbidity rates are declining for virtually every other population segment.

Five key factors contribute to the problems of adolescents. These include teenage pregnancy, substance abuse, physical abuse, psychological disorders, violence and trauma. Adolescence, which should be a carefree time, has become a time when physical and mental health can be endangered.

"A plan is being considered to help physicians become involved in education about and prevention of teenage pregnancy."

In response, the AMA has launched a comprehensive project to improve the health of America's 40 million adolescents. At its annual meeting this April, the Iowa Medical Society brought this national effort to the state level by approving several resolutions on adolescent health.

The AMA program focuses on prevention of substance abuse and teen pregnancy, reductions in suicide and traumatic injury and provision of specialized health care services for the most vulnerable group of teens — the homeless. By the end of 1987, the AMA will spend $500,000 on the program.

The program's foundation is a networking system in which national, state and local organizations can work together to provide information, outreach and programs to help teens make positive life choices. The AMA is inviting leaders from organized medicine, business, education and government to participate. The AMA also plans to establish a data clearinghouse, stimulate new research and enhance physicians' knowledge on preventing adolescent health problems.

In tandem with these efforts, the IMS is planning several initiatives to better equip physicians in dealing with adolescent pregnancy and other adolescent health issues. A special ad hoc committee has been appointed to study the unique problems of adolescent medicine, including teenage pregnancy. A plan is being considered to help physicians become involved in education about and prevention of teenage pregnancy. The IMS also will actively support legislation which addresses this problem.

Until recently, there has been inadequate recognition of adolescence as a "distinctive and highly stressful phase," says the AMA. Clearly, the time has come for the medical profession and other concerned organizations to galvanize efforts to ensure our adolescents grow into healthy adults.

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Team Docs Carry The Ball

THERE IS NOTHING QUITE LIKE autumn in Iowa. It's a season that brings the brilliant colors of turning leaves, the rousing sounds of marching bands and the crisp air which rejuvenates us after summer's heat and humidity. It's also a time for the resumption of school and interscholastic athletics.

In keeping with the season, this edition of IOWA MEDICINE is devoted to sports medicine. High school and college sports have become increasingly sophisticated, and the care of young athletes has followed suit. Fortunately, prevention of injuries is now a key concern of coaches, trainers and school administrators.

This issue updates us on new techniques in the care of athletes, an innovative approach to team physicals and the vital role physicians play in keeping athletes healthy. Iowa physicians — particularly those involved with local athletic programs — should find the information interesting and timely.

Times have certainly changed since it was an "automatic" for the town doctor to be the team doctor. Getting in shape has become a national mania and doctors are learning to take care of out-of-prime exercise enthusiasts as well as well-conditioned athletes. There are differences in ailments and in the philosophies and treatments of these conditions. The modern physician must keep up with new concepts of conditioning and rehabilitation.

We shouldn't forget to say "hats-off" to the team docs of the old days and today's physicians who take time from busy schedules to be involved in care of young athletes. As one of this month's guest authors states, interscholastic athletic programs would not exist without physician involvement. A big thank you to all those physicians who carry the ball.

Fall is also a time when the IMS prepares for the upcoming legislative session. As part of this process, the IMS will sponsor 10 legislative briefings around Iowa in September and October. These regional meetings are open to member physicians, auxiliary members and hospital administrators. Complete details can be found in the August or September IMS UPDATE. Please take advantage of this opportunity to express your concerns and hear about the issues.

D J Walter MD

Dennis J. Walter, M.D.
President

Medical Concerns For The Adolescent Athlete

STEPHEN G. TAYLOR, M.D.
EUGENE F. LUCKSTEAD, M.D.
Des Moines, Iowa

Informed medical attention is an essential part of athletic competition for adolescents. The authors discuss preparticipation examinations, head injuries, heat illness, steroids and other issues of concern to physicians, coaches and trainers who work with young athletes.

FALL SIGNIFIES THE RETURN to school for thousands of Iowa student athletes engaging in competitive sports at the junior and senior high school levels.

These young people require good coaching and informed medical attention. Fortunately, many physicians across Iowa provide this important medical care to student athletes. During the preparticipation "screening" examination; physicians should focus on central nervous system and cardiac abnormalities and past musculo/skeletal injuries. This paper explores the sport preparticipation examination, cardiac-related sudden death risk factors and special concerns of the adolescent athlete.

Dr. Luckstead specializes in pediatrics and cardiovascular diseases at Blank Childrens Hospital in Des Moines. Dr. Taylor is an orthopedic surgeon with Des Moines Orthopaedic Surgeons, P.C.

Football is regarded as having the highest incidence of injury. Several areas warrant attention by physicians, trainers, coaches and parents at the onset of football season. These include heat illness, head injuries, knee braces and anabolic steroids.

Preparticipation Exam

Care of the young athlete usually begins with the preparticipation examination required by state law. Iowa physicians are familiar with the medical history and examination form which is required for competition in school sponsored athletics. (Iowa law requires a complete physical examination yearly in grades 7-12.) The purpose of these examinations is to go beyond identifying athletes who should be disqualified. Other health problems can be identified and appropriate treatment initiated. These conditions do not always disallow participation but may require modification of athletic activities.

These examinations generally are provided in 2 different settings. Many athletes are examined in their personal physician's office. The private exam allows a confidential discussion between patient and physician; previous medical data usually is available. An acceptable alternative is the group evaluation with multiple physician and non-physician examiners. Pediatricians, family practitioners, orthopedists, otolaryngologists, etc. can provide a comprehensive examination in an efficient "station" manner. Either method can be effective if well-organized and accepted by the local medical community.

Sudden Death

The possibility of sudden death in young athletes should be a serious concern. Cardiovascular abnormalities are the most common cause of sudden death in sports; collision related contact sports have the greatest potential for sudden death. Noncardiac causes of sudden death (usually central nervous system and/or pulmonary in eitiology) are uncommon.

Hypertrophic cardiomyopathy is the most common cardiac-related cause of sudden death in young athletes. The problem is a lack of clinical suspicion or recognition. A family history of unexplained sudden death in the 2nd or 3rd decade should raise the possibility of this anomaly. Findings of syncope, severe chest pain with dizziness, prominent pulses and a murmur at the left sternal border would suggest this cardiomyopathy. Other cardiac concerns are myocarditis, congestive cardiomyopathy, anomalous coronary arteries and severe congenital heart abnormalities such as aortic stenosis, pulmonary hypertension and cyanotic congenital heart disease.

Proper blood pressure measurement is part of the preparticipation screening examination and is important to detect moderate or severe systemic hypertension. Cardiac arrhythmias are uncommon and rarely restrictive in this age population. If the possibility of a cardiovascular abnormality is raised, appropriate referral for cardiac consultation is warranted prior to athletic participation.

Heat Illness

Early football conditioning drills and practices occur during late August and early September hot weather. Heat-related illness can be avoided by appropriate preventive measures, but if such problems occur they must be promptly treated.

Vigorous muscle exercise expends energy and produces heat at the cellular level. This heat must be dissipated for muscle function to continue and to prevent rise in body temperature. Most of this heat is carried by blood circulation to the skin. It is then lost from the skin through radiation, conduction, convection and sweat evaporation. The warmer the environment, the less cooling by convection, radiation and conduction. When ambient temperature exceeds skin temperature these processes stop. The only means of heat dissipation is evaporation of sweat. In addition to elevated ambient temperature, increased humidity and lack of air movement diminish heat loss through the skin.

Continual fluid loss by sweating causes dehydration which can result in various heat related syndromes.

Heat cramps are painful spasms of skeletal muscle. Although salt depletion is usually blamed, heat cramps are actually caused by dehydration and can be prevented by frequent liberal water intake (without salt tablets). When heat cramps occur, the athlete should be given water and allowed to rest in a cool environment.

The 2 most serious forms of heat-related illness are heat exhaustion and heat stroke. Heat exhaustion is characterized by weakness, headache, dizziness, and profuse sweating. Affected individuals should be moved to a cool environment and given liberal amounts of water. If mental status or nausea prevents oral intake, the athlete should be hospitalized and given intravenous fluids.

Heat stroke is a life-threatening medical emergency. It causes collapse, disorientation or even unconsciousness. The hallmark of this dangerous condition is the absence of sweating and resultant high body temperature. Heat stroke mandates immediate hospitalization of the patient. Preventing serious injury, sequelae or possible death will require lowering body temperature rapidly with ice water baths, cold gastric lavage, intravenous fluids and other measures.

There is little doubt some form of heat illness will be noted in Iowa high school student athletes this year. Heat-related illnesses can be minimized if certain guidelines are followed by coaches, trainers and team physicians:

- Proper conditioning or acclimatization to exercise in heat. The body adjusts to prolonged exposure at high temperature by decreasing the salt content of sweat (more hypotonic) and allowing sweating to occur at a lower body temperature. Early practices should be shorter in duration and less intense. Encourage athletes to initiate their own physical conditioning several weeks prior to initial practice sessions.

(Please turn to page 434)

MEDICAL CONCERNS FOR THE ADOLESCENT ATHLETE

(Continued from page 433)

• Constant access to cold water is an absolute requirement. Scheduled water breaks must be strictly enforced. Encourage full hydration *prior* to any practice or game.

• Assess the environmental conditions and reschedule activities accordingly. Relative humidity, sunlight and wind velocity also significantly effect the body's cooling mechanism. The higher the humidity, the greater the difficulty for the body to cool itself. Shaded areas of the practice field allow for better dissipation of heat.

• Identify and closely observe individuals at high risk for heat illness. Serious heat problems are more likely in athletes who lose the most body water with exercise. A simple way to measure water loss is to measure body weight before and after practice or exercises. Weight loss greater than 3% of body weight indicates substantial risk. Poor conditioning, illness and obesity also increase risk for heat related syndromes.

• Athletes should wear appropriate clothing. Pads, jerseys and helmets decrease the area of exposed skin and thus decrease heat loss by conduction and sweating. Shorts and fishnet jerseys should be encouraged in hot, humid weather. Sweat saturated T-shirts should be changed often because they retain heat. Because large heat losses occur through the scalp, the football helmet can be a significant heat retaining device. Use the helmet sparingly in hot weather.

Head Injuries

Serious or fatal head injuries occurring in football have decreased over the last decade. Most attribute this decline to good coaching and rule changes which demand that initial contact in both blocking and tackling be made with the shoulder and not the head. The helmet should be regarded as a protective device, not a weapon. Furthermore, improved helmet design and proper helmet fitting has apparently helped diminish the risk of serious head injury. Facts suggest that good coaching, adherence to rules and modern well fitting helmets are essential for the prevention of head injury.

Less serious head injuries such as concussions are common in football. Concussions reportedly occur in 10% of college and high school athletes in a single season. A concussion is generally defined as a temporary post-traumatic impairment of neural function without gross structural brain damage.

Concussions are commonly divided into 3 levels of severity:

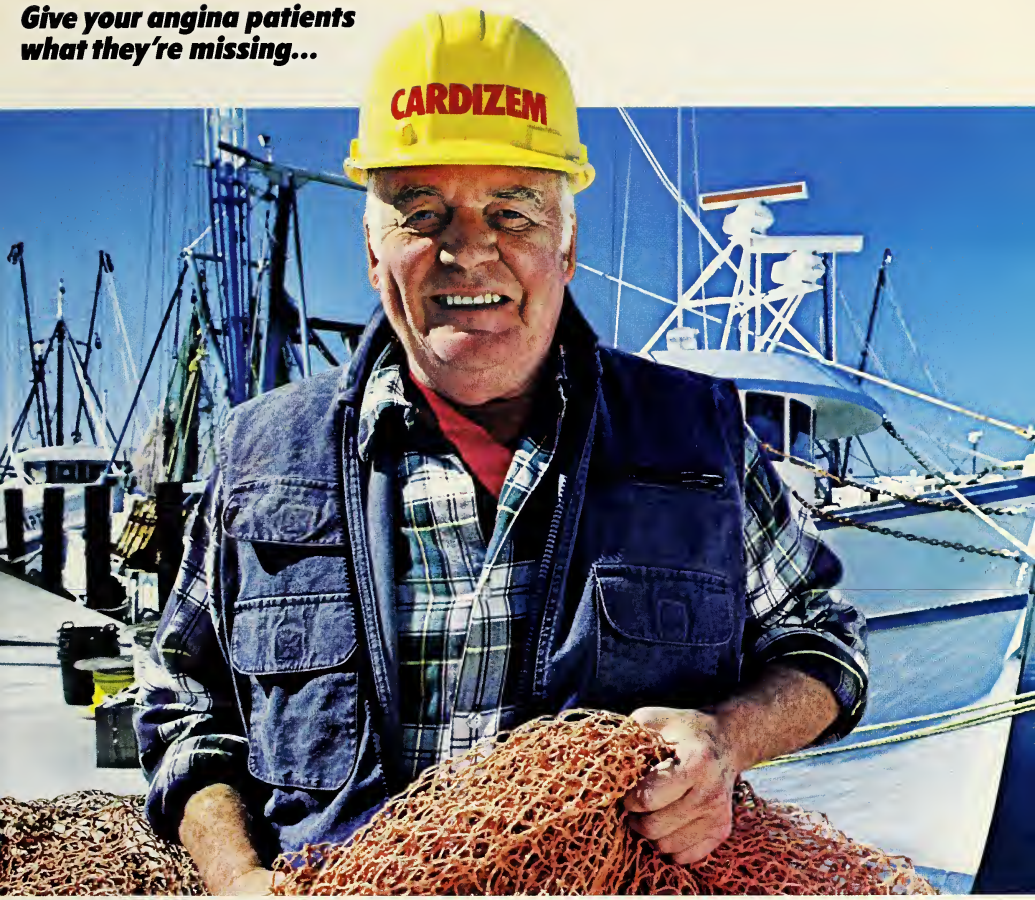
• Mild (Grade 1) concussions are characterized by no observed loss of consciousness but temporarily diminished mental function. The player who has had his "bell rung" or is "dinged" falls into this category. These individuals may exhibit some loss of memory, confusion, headache or dizziness. Initial treatment of a mild concussion requires removing the player from the game and examination on the sidelines. The athlete may be allowed to return to the game only after she/he is fully alert (neurologically normal) and oriented and has no complaint of headache or dizziness (some dispute this and would not allow return to the game). (EFL) A second mild concussion within the same game requires disqualification for the rest of the game and complete neurologic evaluation.

"A second mild concussion within the same game requires disqualification from the rest of the game and complete neurologic evaluation."

• Moderate (Grade 2) concussion is defined as a loss of consciousness of less than 5 minutes with post-traumatic amnesia up to 24 hours. Athletes with this level of injury must be removed from further athletic participation. If unconscious, the player should be moved from the field on a spine board since a neck injury must be assumed. The prognosis is good if normal neurologic function recovers within the first 10 minutes. Close observation and neurologic consultation is required in these individuals.

• Severe (Grade 3) concussion is defined as a loss of consciousness greater than 5 minutes and post-traumatic amnesia greater than 24 hours. Once again this player should be

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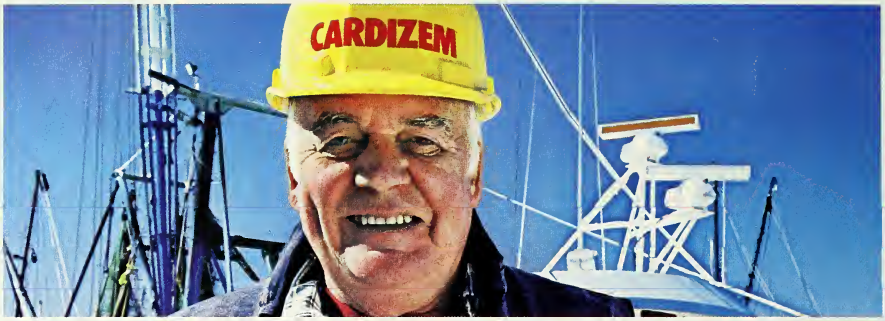
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WARNINGS

1. ***Cardiac Conduction.*** *CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1,243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.*
2. ***Congestive Heart Failure.*** *Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt).*
 Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.
3. ***Hypotension.*** *Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.*
4. ***Acute Hepatic Injury.*** *In rare instances, significant elevations in enzymes such as alkaline phosphatase, CPK, LDH, SGOT, SGPT, and other symptoms consistent with acute hepatic injury have been noted. These reactions have been reversible upon discontinuation of drug therapy. The relationship to CARDIZEM is uncertain in most cases, but probable in some. (See PRECAUTIONS.)*

PRECAUTIONS

General. *CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses at 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing.*

Drug Interaction. *Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)*

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. *A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in in vitro bacterial tests. No intrinsic effect on fertility was observed in rats.*

Pregnancy. *Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.*

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. *Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.*

Pediatric Use. *Safety and effectiveness in children have not been established.*

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences as well as their frequency of presentation are: edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%). In addition, the following events were reported infrequently (less than 1%):

Cardiovascular:	*Angina, arrhythmia, AV block (first degree), AV block (second or third degree — see conduction warning), bradycardia, congestive heart failure, flushing, hypotension, palpitations, syncope.*
Nervous System:	*Amnesia, gait abnormality, hallucinations, insomnia, nervousness, paresthesia, personality change, somnolence, tinnitus, tremor.*
Gastrointestinal:	*Anorexia, constipation, diarrhea, dysgeusia, dyspepsia, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase.*
Dermatologic:	*Petechiae, pruritus, photosensitivity, urticaria.*
Other:	*Amblyopia, dyspnea, epistaxis, eye irritation, hyperglycemia, nasal congestion, nocturia, osteoarticular pain, polyuria, sexual difficulties.*

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, gingival hyperplasia, erythema multiforme, and leukopenia. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established. *Issued 9/86*

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References: ***1.*** *Pepine CJ, Feldman RL, Hill JA, et al: Clinical outcome after treatment of rest angina with calcium blockers: Comparative experience during the initial year of therapy with diltiazem, nitedipine, and verapamil. Am Heart J 1983; 106(6):1341-1347.* ***2.*** *Shapiro W: Calcium channel blockers: Actions on the heart and uses in ischemic heart disease. Consultant 1984;24(Dec):150-159.* ***3.*** *Johnston DL, Lesowky R, Humen DP, et al: Clinical and hemodynamic evaluation of propranolol in combination with verapamil, nifedipine and diltiazem in exertional angina pectoris: A placebo-controlled, double-blind, randomized, crossover study. Am J Cardiol 1985;55:680-687.* ***4.*** *Cohn PF, Braunwald E: Chronic ischemic heart disease, in Braunwald E (ed): Heart Disease: A Textbook of Cardiovascular Medicine, ed 2. Philadelphia, WB Saunders Co, 1984, chap 39.* ***5.*** *Schroeder JS: Calcium and beta blockers in ischemic heart disease: When to use which. Mod Med 1982;50(Sept):94-116.*

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transported on a spine board until a concomitant neck injury is ruled out. These patients should be evaluated at a medical center to rule out increased risk of complications such as intracranial hemorrhage. Nearly all will require a CT brain scan. Return to competition should not be allowed for a minimum of one month.

Cantu has summarized guidelines for return to competition following a concussion.[1] These guidelines may be altered due to continuing symptoms or an abnormal CT scan.

Numerous studies have documented the increased risk and severity of subsequent concussions following an initial concussion. Cautious use of criteria for return to competition should markedly diminish the risk of a second more serious concussion.

Serious and life threatening intracranial hemorrhage must be considered whenever the neurologic status deteriorates. These patients require emergency neurosurgical evaluation as early surgical decompression affords the most favorable prognosis.

Knee Bracing

Another current issue receiving considerable attention from players, parents, coaches and the media is the prevention of knee injuries occurring in football. Various rule changes eliminating dangerous blocking techniques have made a tremendous impact on the number of serious knee injuries. These rules prohibit blocking below the waist in an area 3 yards either side of the line of scrimmage and from the outside hip of one tackle to the outside hip of the other tackle. Blocking below the waist is not allowed on kick offs or punt returns.

Approximately 4 years ago several "protective" or "prophylactic" knee braces were made available to players. These braces have received extensive use at the college level and, to a smaller extent, at the high school level. These braces are marketed as a device designed to prevent serious knee ligament injuries.

Obviously, the intended function of these braces is desirable. Yet, current evidence does not support any substantial effectiveness of these braces.

The most comprehensive study of the effectiveness of these braces was reported by Teitz.[7] Data was collected from 71 Divison I NCAA Schools in 1984 (6307 players) and from 61 schools in 1985 (5445 players). In both years studied, the rate of injury was higher in players using braces than in those who did not (1984-11% compared to 6.0; 1985-9.4% compared to 6.4%). The number of players who required surgical treatment for medial collateral ligament injuries was greater in the braced group in 1984 and equal between the braced and non-braced group in 1985. More serious injuries to the anterior cruciate ligament were not decreased by the use of a protective brace. Meniscus tears occurred slightly more often in players who wore braces.

"Anabolic steroids have led the list of performance enhancers in sports since the 1950's. The use of such drugs is especially prevalent among football players."

This well documented report concludes, "so-called preventive braces are not preventive and may in fact be harmful." Careful reading of this study is recommended for any team physician. It is worthwhile to note most braces used by these teams were of the unilateral single hinge design. Whether the bilateral double hinge design will be more effective remains to be carefully studied.

Anabolic Steroids

Use of anabolic steroids by professional and collegiate athletes is well documented. NCAA and Olympic testing requirements have brought recent notoriety to this issue. How prevalent are anabolic steroids at the high school level? The answer to these questions remains elusive. Physicians working with young athletes should familiarize themselves with the ergogenic effect and the harmful side effects of these drugs. Only with such information can one effectively counsel the young athlete concerning steroid use.

Anabolic steroids have led the list of performance enhancers in sports since the 1950's. The use of such drugs is especially prevalent among football players. It is also reported many world class weight lifters, body builders and participants in the shot put, discus and hammer throw use anabolic steroids.

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MEDICAL CONCERNS FOR THE ADOLESCENT ATHLETE

(Continued from page 435)

Anabolic steroids can be taken orally or by injection. The most widely used oral steroid has been methandrostenolene (Dianabol, Ciba-Geigy) even though it has been withdrawn from the market by Ciba. Several generic forms are available. Athletes also use oil based steroids that are injected subcutaneously or intramuscularly. These drugs have a long duration of activity. A commonly used injectable drug is nandrolone phenpropionate (Durabolin, Organon).

Most anabolic steroids used by athletes are not prescribed by physicians. They are obtained through mail orders in body building magazines, contacts at pharmaceutical houses or in some gymnasiums or health clubs. Many anabolic steroids popular in the U.S. are manufactured in foreign countries (such as Mexico) and imported illegally.

The goal of anabolic steroid use by athletes is increased muscle size and strength. There is no question anabolic steroids stimulate protein synthesis in skeletal muscle. Anabolic steroids may block the catabolic effect of glucocorticosteroids released during stress, thereby decreasing the loss of muscle protein. But do these effects of anabolic steroids necessarily lead to improved strength and performance? An extensive review of the literature by Haupt and Rovere concluded *only* individuals experienced in weight training and who continue strenuous training during administration of anabolic steroids will experience significant strength increases greater than expected with training alone.[2] Athletes inexperienced in weight training will gain little or no benefit from anabolic steroids.

Substantial protein intake is necessary to maintain positive nitrogen balance during vigorous training and anabolic steroid use. A high protein diet is necessary for anabolic steroids to have a significant effect on strength.

Athletic performance may be enhanced by the subjective motivational effects of steroids. Anabolic steroid users report an increase in aggressiveness and diminished fatigue with exercise and competition.

Potentially harmful side effects of anabolic steroids are known to most physicians and they should strongly discourage any use in the young athlete. Anabolic steroids are contraindicated in children and teenagers because they can cause premature closure of the epiphyseal plate leading to short stature.

In males, use of anabolic steroids results in decreased production of testosterone, testicular atrophy and, often, decreased sexual libido. These changes occur as the increased circulating anabolic-androgenic steroids suppress gonadotropin production by the pituitary gland. Gynecomastia (witches breasts) may also occur in some males. Acne may appear or is often made worse.

In females, permanent virilizing effects such as facial hair, deepening of the voice and enlargement of the clitoris may occur.

Most oral anabolic steroids can cause liver dysfunction and abnormal liver function tests. In rare instances, liver tumors and peliosis hepatitis have been described.

Recent investigators have noted altered lipid metabolism which may significantly increase the risk of cholesterol deposits and coronary artery disease.

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Fortunately, most of these short term adverse effects are reversible with discontinuation of the anabolic steroids. Other more serious long term harmful effects may be identified after years of use. Unfortunately, most of the data available on serious adverse effects have not included the many athletes using "mega" doses or those who "stack" a variety of steroid preparations.

These documented dangers of steroid use have led to a sharp decline in the number of physicians willing to prescribe anabolic steroids. The medical community must continue to discourage the use of these steroids on health and ethical grounds. Furthermore, use of performance enhancing drugs is contrary to fair competition between athletes.

Conclusion

The high school athlete presents many problems and concerns to the physician. We have outlined some of the critical areas of medical evaluation pertaining to preparticipation screening which should include special emphasis on the cardiac, neurological and musculoskeletal systems. Practical management and prevention of heat related illnesses and head injuries were briefly reviewed. The controversial areas of knee braces and anabolic steroid problems are also briefly discussed. We feel that this information will be helpful to team physicians and others dealing with the high school student athlete in Iowa.

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Preparticipation Sports Evaluation

ROBIN ROSENSTOCK, M.D.
E. F. LUCKSTEAD, M.D.
MARTY ANDREGG, A.T.C.
MIKE DREIBELBEIS, A.T.C., L.P.T.
LONNIE CLARK, M.S.E.
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Des Moines, Iowa

Annual physicals are required for all junior and senior high students who wish to participate in interscholastic athletic programs in Iowa schools. The authors describe how an interdisciplinary team can be assembled to administer these physicals in the most efficient and effective manner possible.

A LARGE NUMBER OF HIGH SCHOOL and college athletes require annual preparticipation evaluations for sports. We assembled an interdisciplinary evaluation team to provide useful medical information to athletes, schools and coaches. All local physicians were contacted to participate. Other team members were nurses, athletic trainers, physical therapists, dentists and volunteers. Coaches at area high schools were contacted and interested athletes scheduled. Prior to the examination, coaches distributed history and consent forms to the athletes.

Included in the history are questions about family death before 50 years of age, previous head injury, previous extremity and spinal injuries and general health questions about heart murmurs, blood pressure and other medical problems.

Coaches schedule times in June or August for group physicals. We are able to see 60-80 athletes in a session. The physical exam is geared to the athlete. It evaluates total body strength (using grip strength), leg strength, and integrity of the knee (using the Cybex testing and joint stability testing) and joint laxity of the ankle. Flexibility in the lower extremity is evaluated. Stretching exercises are given to each athlete, with an explanation. Tanner staging is performed to provide information for coaches and counseling for athletes.

Through the multidisciplinary approach, we can offer significantly more than a "locker room" physical and a more extensive musculoskeletal evaluation than physicians could provide in their offices. We send copies of the forms to the athlete's primary physician if requested. We involve the local physicians, especially those interested in sports medicine, by inviting them to participate.

Initially, an athlete is seen by a volunteer who checks the history form for pertinent positive replies, the consent form and collects the

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Dr. Rosenstock is a fellow in adolescent medicine at Blank Memorial Children's Hospital. Dr. Luckstead is chairman of the department of pediatrics and a sports medicine specialist at Iowa Methodist Medical Center. Mr. Andregg, Mr. Dreibelbeis and Mr. Clark are physical therapists with the Iowa Methodist Sports Medicine Center. Dr. Greydanus is a pediatrician and adolescent medicine specialist at Iowa Methodist Medical Center.

PARTICIPATION SPORTS EVALUATION

(Continued from page 439)

prearranged fee. We arranged the examination in the following manner:

Station 1: Blood pressure taken by a nurse and % body fat measured using electrical conductance by an athletic trainer.

Station 2: Vision screen performed by a nurse or volunteer.

Station 3: Flexibility of the quadriceps, hamstrings, iliotibial bands, gastrocnemius, soleus, adductors, hip flexors, internal and external hip rotators evaluated and scoliosis screening completed. Joint stability of the knee and ankle checked. (This is done by physical therapists.)

Station 4: Height and weight measurement and assessment.

Station 5: Grip strength tested and Cybex strength testing at 60 deg/sec and 180 deg/sec performed. The Cybex is a machine used to test the knee joint and the relative strength of the quadriceps and hamstrings. (This is done by an athletic trainer. It may be possible to rent or borrow a machine.)

Stations 6 & 7: These stations consist of a dental evaluation and a sport physical examination by a physician. The results are reviewed by the physician who recommends either full participation, disqualification or other options. The athlete is given a "completed" form to take home, along with a sheet of stretching exercises and other specific recommendations.

We have evaluated participants in football, basketball, cheerleading, volleyball, softball, track and field, wrestling and swimming. The program is in its second year, and the response from coaches has been very favorable. Coaches are trying to contact all students who will be participating in a sport to come for physicals. Some schools plan to bring in 200-300 athletes for sport physicals. The athletes readily accept the examination procedure and are interested in the information provided. This type of team evaluation helps assess the individual athlete for each sport with an emphasis on joint and muscle development, maturation, injury susceptibility and as a base for rehabilitation should injuries occur.

In the history and physical examination, particular attention is paid to the cardiovascular, neurologial and musculoskeletal systems. Both athletes and their parents tend to rule out the cardiovascular system as a source of problems because of age. The fact the heart can be a cause of morbidity and mortality in a teenage athlete is contrary to what most people have heard and must be emphasized.

The diagnosis of concussion covers a variety of states of consciousness. Many nonmedical people feel once a person is conscious, (s)he is able to make a rational decision about re-entering a game or contest. The consequences of multiple episodes of head trauma are rarely considered by athletes. Head trauma is not uncommon in high school athletics and possible neurological sequelae must be investigated before medical clearance can be given.

Numerous studies of athletic injuries in high school sports have been reported. The lower extremity — specifically the knee and ankle — are especially vulnerable. Prior injury, poor conditioning and poor technique seem to predispose to further injury. For this reason, the evaluation should cover the stability of joints, joint and muscle flexibility and methods for conditioning and preventing further injuries.

We have used the station approach with a multidisciplinary team to provide an efficient preparticipation sports physical. This approach provides essential information for the athlete, coach and primary physician to aid in injury prevention and allow reassessment and rehabilitation should injury occur.

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Copies of the sports physical evaluation forms described by the authors are available by contacting Robin Rosenstock, M.D., Iowa Methodist Sports Medicine Center, 4631 Merle Hay Road, Des Moines, Iowa 50322, (515) 278-8444.

DAVE HARDY

Questions and Answers



Physicians' Role in High School Athletics

The cooperation of physicians is vital to school athletic programs. The author, assistant executive secretary for the Iowa High School Athletic Association, discusses the role of the medical profession in interscholastic athletics and outlines IHSAA concerns regarding sports medicine.

What assistance does the IHSAA desire from the medical profession in programs for young athletes?

Medical assistance at high school athletic events provides peace of mind for everyone involved. The IHSAA appreciates having physicians available at games; but we realize it is not practical to expect to have a physician at practices, though they do sometimes attend. In most cases, provisions are made for "on-call" medical assistance. Local paramedics, nurses and others also provide assistance. We also appreciate the physical examinations given to students so they can participate in interscholastic athletics.

The IHSAA and the IMS Sports Medicine Committee sponsor a statewide Sports Medicine Conference for physicians and other medical personnel, school administrators, coaches and trainers. This conference gives coaches an opportunity to get the latest information in prevention and treatment of athletic injuries.

The IHSAA participates in meetings of the IMS Sports Medicine Committee to share common concerns. For example, for the past 15 years the IHSAA and the committee have researched wrestling weight reduction in an effort to find a scientific method for determining the lowest weight at which a high school wrestler should compete. This fall, all schools will have the opportunity to participate in a statewide testing program which is a result of these efforts.

The IHSAA also receives a valuable service through the IMS Sports Medicine Committee staffing of physicians for the state basketball tournament.

What is your opinion of the mass physical examinations of athletes conducted in some schools?

Examinations in a physician's office are perhaps the most desirable but are not always practical. Due to a physician shortage and the time required for office call physicals, many communities conduct mass physicals for athletes in the spring or fall. However, the facility must provide enough privacy to eliminate outside distractions.

Do you think enough Iowa physicians are involved in high school athletics?

Some small communities have difficulty securing medical coverage due to a physician

(Please turn to page 442)

QUESTIONS AND ANSWERS

(Continued from page 441)

shortage. Generally, there is much participation in the health care of student athletes by Iowa physicians. They give many hours of their time — often at a reduced fee or free of charge to students.

In some communities, interest is not as great. This could be due to increased demands on physicians' time. However, there is no question most Iowa physicians are very interested in school sports and academic programs.

Are Iowa coaches more concerned about athletes' health than they once were?

They are very concerned and make a concerted effort to learn more about sports medicine. They participate in more clinics and workshops. The safety and welfare of the athlete is paramount when rules are written for all sports.

How would you characterize the relationship between physicians, coaches and school administration?

I would characterize it as very positive. We encourage participation of coaches and school administrators in health care workshops and clinics. Iowa school districts are very appreciative of the health care provided to student athletes by local physicians. It would be difficult to run interscholastic athletic programs without them.

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Pregnancy: Pregnancy Category B. Teratogenicity studies have been performed in mice, rats, and rabbits at doses up to 50 times the human dose and have revealed no evidence of harm to the fetus due to sucralfate. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when sucralfate is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS
Adverse reactions to sucralfate in clinical trials were minor and only rarely led to discontinuation of the drug. In studies involving over 2,500 patients, adverse effects were reported in 121 (4.7%). Constipation was the most frequent complaint (2.2%). Other adverse effects, reported in no more than one of every 350 patients, were diarrhea, nausea, gastric discomfort, indigestion, dry mouth, rash, pruritus, back pain, dizziness, sleepiness, and vertigo.

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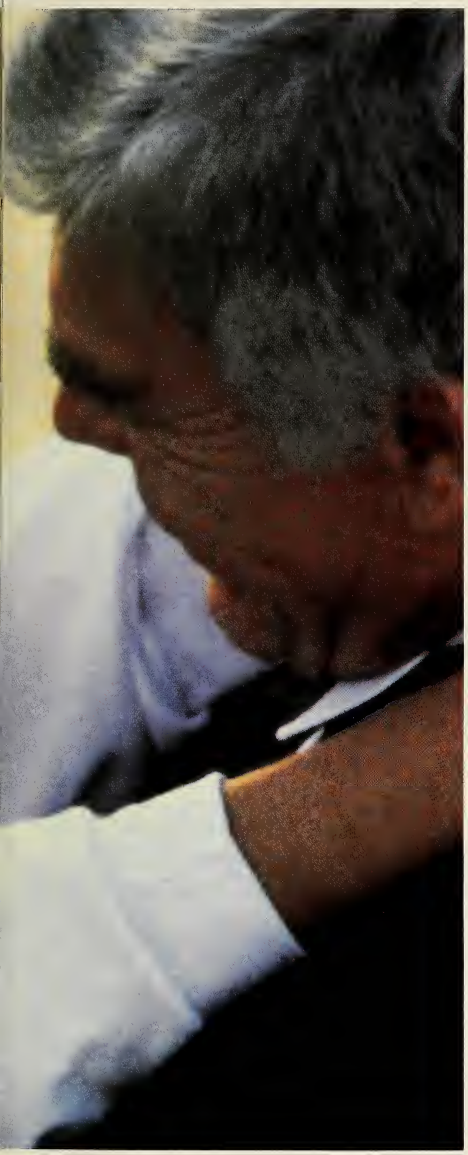
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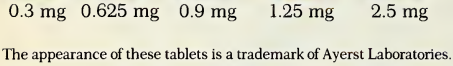
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PREMARIN® Brand of conjugated estrogens tablets, USP
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1. ESTROGENS HAVE BEEN REPORTED TO INCREASE THE RISK OF ENDOMETRIAL CARCINOMA. Three independent, case-controlled studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens for more than one year. This risk was independent of the other known risk factors for endometrial cancer. These studies are further supported by the finding that incidence rates of endometrial cancer have increased sharply since 1969 in eight different areas of the United States with population-based cancer reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade. The three case-controlled studies reported that the risk of endometrial cancer in estrogen users was about 4.5 to 13.9 times greater than in nonusers. The risk appears to depend on both duration of treatment and on estrogen dose. In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible. When prolonged treatment is medically indicated, the patient should be reassessed on at least a semi-annual basis to determine the need for continued therapy. Although the evidence must be considered preliminary, one study suggests that cyclic administration of low doses of estrogen may carry less risk than continuous administration; it therefore appears prudent to utilize such a regimen. Close clinical surveillance of all women taking estrogens is important. In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding, adequate diagnostic measures should be undertaken to rule out malignancy. There is no evidence at present that "natural" estrogens are more or less hazardous than "synthetic" estrogens at equi-estrogenic doses.

2. ESTROGENS SHOULD NOT BE USED DURING PREGNANCY. The use of female sex hormones, both estrogens and progestogens, during early pregnancy may seriously damage the offspring. It has been shown that females exposed in utero to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing, in later life, a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated as not greater than 4 per 1,000 exposures. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have vaginal adenosis, epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are precursors of malignancy. Although similar data are not available with the use of other estrogens, it cannot be presumed they would not induce similar changes. Several reports suggest an association between intrauterine exposure to female sex hormones and congenital anomalies, including congenital heart defects and limb-reduction defects. One case-controlled study estimated a 4.7-fold increased risk of limb-reduction defects in infants exposed in utero to sex hormones (oral contraceptives, hormone withdrawal tests for pregnancy, or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb-reduction defects in exposed fetuses is somewhat less than 1 per 1,000. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well-controlled studies that progestogens are effective for these uses. If PREMARIN is used during pregnancy, or if the patient becomes pregnant while taking this drug, she should be apprised of the potential risks to the fetus, and the advisability of pregnancy continuation.

DESCRIPTION: PREMARIN (conjugated estrogens, USP) contains a mixture of estrogens, obtained exclusively from natural sources, blended to represent the average composition of material derived from pregnant mares' urine. It contains estrone, equilin, and 17α-dihydroequilin, together with smaller amounts of 17α-estradiol, equilenin, and 17α-dihydroequilenin as salts of their sulfate esters. Tablets are available in 0.3 mg, 0.625 mg, 0.9 mg, 1.25 mg, and 2.5 mg strengths of conjugated estrogens. Cream is available as 0.625 mg conjugated estrogens per gram.

INDICATIONS AND USAGE: PREMARIN (conjugated estrogens tablets, USP): Moderate-to-severe *vasomotor* symptoms associated with the menopause. (There is no evidence that estrogens are effective for nervous symptoms or depression without associated vasomotor symptoms and they should not be used to treat such conditions.) Osteoporosis (abnormally low bone mass). Atrophic vaginitis. Kraurosis vulvae. Female castration.

PREMARIN (conjugated estrogens) Vaginal Cream is indicated in the treatment of atrophic vaginitis and kraurosis vulvae.

PREMARIN HAS NOT BEEN SHOWN TO BE EFFECTIVE FOR ANY PURPOSE DURING PREGNANCY AND ITS USE MAY CAUSE SEVERE HARM TO THE FETUS (SEE BOXED WARNING).

Concomitant Progestin Use: The lowest effective dose appropriate for the specific indication should be utilized. Studies of the addition of a progestin for 7 or more days of a cycle of estrogen administration have reported a lowered incidence of endometrial hyperplasia. Morphological and biochemical studies of the endometrium suggest that 10 to 13 days of progestin are needed to provide maximal maturation of the endometrium and to eliminate any hyperplastic changes. Whether this will provide protection from endometrial carcinoma has not been clearly established. There are possible additional risks which may be associated with the inclusion of progestin in estrogen replacement regimens. (See PRECAUTIONS.) The choice of progestin and dosage may be important, product labeling should be reviewed to minimize possible adverse effects.

CONTRAINDICATIONS: Estrogens should not be used in women (or men) with any of the following conditions: 1. Known or suspected cancer of the breast except in appropriately selected patients being treated for metastatic disease. 2. Known or suspected estrogen-dependent neoplasia. 3. Known or suspected pregnancy (see Boxed Warning). 4. Undiagnosed abnormal genital bleeding. 5. Active thrombophlebitis or thromboembolic disorders. 6. A past history of thrombophlebitis, thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast or prostatic malignancy).

WARNINGS: Estrogens have been reported to increase the risk of endometrial carcinoma (see Boxed Warning). However, a recent large, case-controlled study indicated no increase in risk of breast cancer in postmenopausal women. A recent study has reported a 2- to 3-fold increase in the risk of surgically confirmed gallbladder disease in women receiving postmenopausal estrogens.

Adverse effects of oral contraceptives may be expected at the larger doses of estrogen used to treat prostatic or breast cancer or postpartum breast engorgement; it has been shown that there is an increased risk of thrombosis in men receiving estrogens for prostatic cancer and women for postpartum breast engorgement. Users of oral contraceptives have an increased risk of diseases, such as thrombophlebitis, pulmonary embolism, stroke, and myocardial infarction. Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users. An increased risk of postsurgery thromboembolic complications has also been reported in users of oral contraceptives. If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism, or during periods of prolonged immobilization. Estrogens should not be used in persons with active thrombophlebitis, thromboembolic disorders, or in persons with a history of such disorders in association with estrogen use. They should be used with caution in patients with cerebral vascular or coronary artery disease. Large doses (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast, have been shown to increase the risk of nonfatal myocardial infarction, pulmonary embolism, and thrombophlebitis. When doses of this size are used, any of the thromboembolic and thrombotic adverse effects should be considered a clear risk.

Benign hepatic adenomas should be considered in estrogen users having abdominal pain and tenderness, abdominal mass, or hypovolemic shock. Hepatocellular carcinoma has been reported in women taking estrogen-containing oral contraceptives. Increased blood pressure may occur with use of estrogens in the menopause and blood pressure should be monitored with estrogen use. A worsening of glucose tolerance has been observed in patients on estrogen-containing oral contraceptives. For this reason, diabetic patients should be carefully observed. Estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases.

PRECAUTIONS: Physical examination and a complete medical and family history should be taken prior to the initiation of any estrogen therapy with special reference to blood pressure, breasts, abdomen, and pelvic organs, and should include a Papanicolaou smear. As a general rule, estrogen should not be prescribed for longer than one year without another physical examination being performed. Conditions influenced by fluid retention, such as asthma, epilepsy, migraine, and cardiac or renal dysfunction, require careful observation. Certain patients may develop manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding, mastodynia, etc. Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients. Oral contraceptives appear to be associated with an increased incidence of mental depression. Patients with a history of depression should be carefully observed. Pre-existing uterine leiomyomata may increase in size during estrogen use. The pathologist should be advised of estrogen therapy when relevant specimens are submitted. If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated. Estrogens should be used with care in patients with impaired liver function, renal insufficiency, metabolic bone diseases associated with hypercalcemia, or in young patients in whom bone growth is not yet complete. If concomitant progestin therapy is used, potential risks may include adverse effects on carbohydrate and lipid metabolism.

The following changes may be expected with larger doses of estrogen:

a. Increased sulfobromophthalein retention.

b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3, increased norepinephrine-induced platelet aggregability.

c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by PBI, T_4 by column, or T_4 by radioimmunoassay. Free T_3 resin uptake is decreased, reflecting the elevated TBG; free T_4 concentration is unaltered.

d. Impaired glucose tolerance.

e. Decreased pregnanediol excretion.

f. Reduced response to metyrapone test.

g. Reduced serum folate concentration.

h. Increased serum triglyceride and phospholipid concentration.

As a general principle, the administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk.

Long-term, continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina, and liver. However, in a recent, large case-controlled study of postmenopausal women there was no increase in risk of breast cancer with use of conjugated estrogens.

ADVERSE REACTIONS: The following have been reported with estrogenic therapy, including oral contraceptives: breakthrough bleeding, spotting, change in menstrual flow; dysmenorrhea; premenstrual-like syndrome; amenorrhea during and after treatment; increase in size of uterine fibromyomata; vaginal candidiasis, change in cervical erosion and in degree of cervical secretion; cystitis-like syndrome, tenderness, enlargement, secretion (of breasts); nausea, vomiting, abdominal cramps, bloating; cholestatic jaundice, chloasma or melasma which may persist when drug is discontinued; erythema multiforme; erythema nodosum; hemorrhagic eruption, loss of scalp hair; hirsutism, steepening of corneal curvature; intolerance to contact lenses; headache, migraine, dizziness, mental depression, chorea, increase or decrease in weight; reduced carbohydrate tolerance, aggravation of porphyria; edema; changes in libido.

ACUTE OVERDOSAGE: May cause nausea, and withdrawal bleeding may occur in females.

DOSAGE AND ADMINISTRATION:

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1. *Given cyclically for short-term use only.* For treatment of moderate-to-severe *vasomotor* symptoms, atrophic vaginitis, or kraurosis vulvae associated with the menopause (0.3 mg to 1.25 mg or more daily). The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible. Administration should be cyclic (eg, three weeks on and one week off). Attempts to discontinue or taper medication should be made at three- to six-month intervals.

2. *Given cyclically:* Osteoporosis. Female castration. Osteoporosis — 0.625 mg daily. Administration should be cyclic (eg, three weeks on and one week off). Female castration—1.25 mg daily, cyclically. Adjust upward or downward according to response of the patient. For maintenance, adjust dosage to lowest level that will provide effective control.

Patients with an intact uterus should be monitored for signs of endometrial cancer and appropriate measures taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

PREMARIN® Brand of conjugated estrogens Vaginal Cream

Given cyclically for short-term use only. For treatment of atrophic vaginitis or kraurosis vulvae.

The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible.

Administration should be cyclic (eg, three weeks on and one week off).

Attempts to discontinue or taper medication should be made at three- to six-month intervals.

Usual dosage range: 2 g to 4 g daily, intravaginally, depending on the severity of the condition.

Treated patients with an intact uterus should be monitored closely for signs of endometrial cancer and appropriate diagnostic measures should be taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

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1. Lindsay R, Hart OM, Clark OM: The minimum effective dose of estrogen for prevention of postmenopausal bone loss. *Obstet Gynecol* 1984;63:759-763. **2.** Studd JWW, Thom MH, Paterson MEL, et al: The prevention and treatment of endometrial pathology in postmenopausal women receiving exogenous estrogens, in Pasetto N, Paoletti R, Ambrus JL (eds): *The Menopause and Postmenopause.* Lancaster, England, MTP Press Ltd, 1980, chap 13.

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Implementing Minimal Weight Prediction Equations For Iowa High School Wrestlers

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The 1985 Iowa Wrestling Study outlined simple but accurate methods for predicting the minimal weight of high school wrestlers. In this article, the authors recount experiences while implementing the minimal weight formulas at 5 schools in the Davenport area.

THE PROBLEM OF EXCESSIVE WEIGHT LOSS among Iowa high school wrestlers continues to be a serious problem. A recent survey of Iowa wrestlers found the extent and methods of weight loss are very similar to those surveyed 18 years ago.[4, 6] The position statements some 10 years ago by the American Medical Association and the American College of Sports Medicine have done little to change the unhealthy and potentially dangerous practices of this athletic population.[1, 2]

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In 1985, the Iowa Wrestling Study published results of an extensive investigation which cross-validated 2 simple yet accurate methods for predicting the minimal weight of high school wrestlers.[5] These formulas, which employ measurements of skinfolds and skeletal dimensions, require inexpensive equipment and relatively simple measurement techniques. The methods for measurement and computation of minimal weight were described more extensively in a subsequent article.[3]

The purpose of the project was to implement minimal weight testing of high school wrestlers on a mass scale. It was uncertain whether testers could be properly trained to make accurate measurements efficiently with large numbers of subjects. The results of this study support the feasibility of this technique. Although problems arose, they were solvable and the information returned to wrestlers valid.

This article recounts the authors' experiences while implementing minimal weight prediction formulas at 5 schools in the Davenport area during the fall of 1986. The pilot project focused on training of testers, pragmatic and practical problems associated with the testing and evaluation of results for wrestlers and testers.

Training of Testers

In the spring of 1986, a clinic was held to introduce the testers to the principles behind measurement procedures, demonstrate techniques and provide opportunity to practice measurement protocol. Participants in the clinic

included trainers from Davenport area high schools and the professional staff at Orthopaedic Surgery Associates, P.C. An emphasis during the clinic was standardizing the measurement procedure for each of the 13 sites employed in the formulas. Initially, this required considerable care and vigilance by the participants during practice sessions. As the techniques were mastered, competency improved. Prior to initial testing in the fall, a short review session on measurement methods was held.

Pragmatic and Practical Problems

Implementation of any new protocol offers many problems, some of which are unforeseen. This was the case with minimal weight testing. It was especially important for this project to have the cooperation of wrestlers, coaches and parents. Necessary approval for the project was readily obtained from the athletic directors of the area. To alleviate the apprehension of coaches, parents and wrestlers, a district-wide information and education session was held a week before the testing began. During this presentation, the protocol was demonstrated and the benefits of obtaining this information explained. Fundamentals of weight loss and good nutrition for adolescent athletes were highlighted.

Throughout the presentation, and in subsequent testing, it was emphasized that minimal results were strictly informational. It was the decision of the wrestler, coach or school whether to use the predicted weight as the minimum for competition. We urged the minimal weight be determined using the testing protocol, but offered no opinion regarding use of the results.

Beyond soliciting cooperation from the participants, several practical problems associated with measuring the subjects required attention. Under normal conditions, one tester can measure a subject in about 15 minutes. By using an assembly line approach in which 4 or 5 testers are each responsible for a specific aspect of the protocol, subjects can be processed at a faster pace. If student trainers are used to record measurements as the tester calls them out, the process is expedited.

About 60% of the wrestlers were tested at the medical clinic on a Friday evening and Saturday morning. The participating schools were staggered over this time period to minimize delays in processing subjects. Results of the testing were provided before the subjects left the clinic, along with information on dieting and proper nutrition.

TABLE 1

MINIMAL WEIGHTS OF THE HIGH SCHOOL WRESTLERS ($\bar{X} \pm SD$)

Variable	*Cross Validation Sample* (N=220)*	*Davenport Sample (N=85)*
Weight (lbs)	142.3 ± 24.8	141.2 ± 24.3
Height (in)	67.4 ± 2.8	67.2 ± 2.7
% Fat	10.1 ± 4.4	10.6 ± 2.7
Skeletal Dimensions Minimal Weight (lbs)	133.9 ± 21.5	131.2 ± 22.7
Skinfolds Minimal Weight (lbs)	135.3 ± 21.6	132.4 ± 19.5
1985 Combined Minimal Weight Formula (lbs)	134.0 ± 21.2	130.2 ± 22.2

*See Oppliger, RA & Tipton CM: Weight prediction equation tested and available. *Iowa Medicine* 1985;75(10):449-453.

Testing at the clinic meant minimal inconvenience for the testers. All necessary equipment and a microcomputer for processing results were readily available. However, because of the inconvenience of traveling to the clinic, some wrestlers were not tested.

For 2 schools, measurements were taken at the school. Wrestlers were shuttled out of practice and through the assembly line. This method was particularly effective with experienced testers, was convenient for the wrestlers and maximized the number of athletes tested because they were already present for practice. Results of the testing were returned within 48 hours.

There were expenses involved in initiation of the program. Durable equipment purchases included a skinfold caliper and a skeletal anthropometer (Iowa caliper). There were minimal expenses for nonreusable items. Expenses were incurred to train testers and offset the costs of personnel during the testing.

Evaluation of Results

Measurements of subjects were made using both skinfolds and skeletal sites. As a result, minimal weight could be computed using all 3 methods previously developed.[5] To examine the reliability of the measurements, the data for the 85 Davenport wrestlers was compared to the sample of 220 subjects used to

(Please turn to page 446)

WEIGHT EQUATIONS FOR IOWA HIGH SCHOOL WRESTLERS

(Continued from page 445)

TABLE 2

SKELETAL DIMENSIONS OF HIGH SCHOOL WRESTLERS ($\bar{X}$ ± SD)

Site*	Cross Validation Sample	Davenport Sample
Chest Diameter (cm)	26.8 ± 1.9	26.5 ± 2.0
Chest Depth (cm)	18.7 ± 1.8	18.2 ± 2.1
Bi-iliac Diameter (cm)	26.9 ±1.7	26.3 ± 2.2
Bitrochanteric Diameter (cm)	30.7 ± 1.8	30.6 ± 2.2
Right Ankle Diameter (cm)	7.0 ± 0.4	7.0 ± 0.4
Left Ankle Diameter (cm)	6.9 ± 0.4	6.9 ± 0.4
Right Wrist Diameter (cm)	5.4 ± 0.3	5.5 ± 0.4
Left Wrist Diameter (cm)	5.3 ± 0.4	5.4 ± 0.4

*See Oppliger, RA Using the minimal weight prediction formula for high school wrestlers. *Iowa Medicine* 1986;76(2):66-67.

TABLE 3

SKINFOLDS FOR HIGH SCHOOL WRESTLERS ($\bar{X}$ ± SD)

Site*	Cross Validation Sample	Davenport Sample
Chest (mm)	5.8 ± 2.2	7.1 ± 2.4
Triceps (mm)	8.2 ± 2.7	9.6 ± 3.4
Subscapula (mm)	8.2 ± 3.0	8.7 ± 3.2
Suprailiac (mm)	10.7 ± 5.8	13.1± 5.5
Abdomen (mm)	10.1 ± 4.9	11.5 ± 5.4
Thigh (mm)	9.4 ± 3.2	11.2 ± 4.3
Sum of Sites (mm)	52.6 ± 18.7	61.2 ± 21.7

*See Oppliger, RA Using the minimal weight prediction formula for high school wrestlers. *Iowa Medicine* 1986;76(2):66-67.

cross-validate the formulas.[5] These results are shown in Tables 1 through 3.

As shown in Table 1, the Davenport wrestlers were slightly lighter, shorter and fatter than the cross-validation sample. As a result, the minimal weight by each of the 3 methods was 2.7 lbs. to 3.8 lbs. lower. As evident with the cross-validation sample, a comparison of minimal weight predicted by each of the 3 methods shows only small differences (≤2.2 lbs. for Davenport sample and ≤1.4 lbs for the cross-validation sample).

Comparisons of the skeletal dimensions and skinfolds for the 2 samples are shown in Tables 2 and 3. The skeletal dimensions were slightly lower, but varied by no more than 2.5% between the 2 groups. The largest relative differences were shown at the chest depth and bi-iliac sites. The skinfolds showed greater differences. Mean values were 20% higher for the Davenport subjects at 3 sites (chest, suprailiac and thigh). The sum of skinfolds was 16% larger for the Davenport data. The apparent differences did not alter the predicted minimal weight appreciably when compared to the cross-validation sample or the predicted minimal weight by the other techniques. It seems reasonable to conclude the observed differences were related to true differences in body fatness of the 2 sample populations.

Summary

We sought to implement the testing on a strictly informational basis, with schools, coaches, athletes and parents using the results as they felt appropriate. In this respect, it was not surprising the response of the participants varied. One school adopted the predicted minimal weight as the criteria for certification weight. Other schools found the information useful but were less rigid when establishing a policy. Some schools showed no enthusiasm for the idea.

The response of the wrestlers was generally positive. Although some were a little apprehensive, the majority were interested in being tested. The response from parents was very positive, with many parents as eager as the athletes to know the results.

From our experience, the following conclusions can be drawn:

- Minimal weight testing of wrestlers can be administered on a large scale.
- Satisfactory training of testers can be accomplished; skill and efficiency is enhanced with repetition.
- It seems appropriate the results be used as a guidance for the wrestlers, coaches and parents.
- Distribution of results should be accompanied by information on proper diet and weight control for adolescent athletes.

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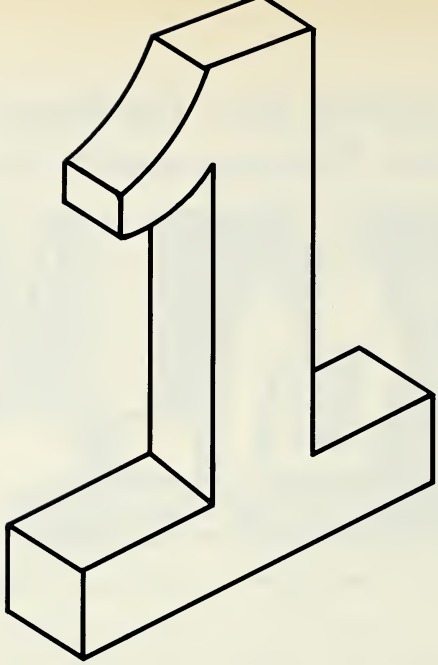
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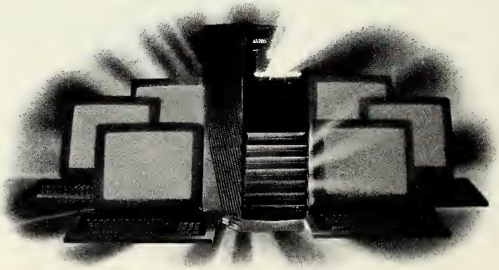


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Systemic Fluoride Supplements for Iowa Children: The Physician's Role

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Fluoride remains the best defense against dental caries, one of the most common childhood diseases. The authors discuss proper amounts of fluoride to protect children's teeth against this disease and how Iowa physicians can provide appropriate doses of fluoride to help those children in need.

DENTAL CARIES IS ONE OF THE MOST common childhood diseases. Appropriately used fluoride remains the best defense against dental caries, despite extensive efforts to develop improved methods of mechanical plaque removal, develop chemical agents that safely and effectively reduce the cariogenic activity of bacteria, and reduce intake of cariogenic foods by modification of dietary practices.[1] Pit-and-fissure sealants are an important new weapon in caries control, but their effectiveness depends heavily on the ability of fluorides to control smooth surface caries. Although the mechanisms by which fluorides exert their caries-inhibiting effects are not fully understood, these mechanisms are thought to be: reduction of enamel solubility, remineralization of early carious lesions and action on plaque bacteria.

Fluoride products are intended for use systemically or topically.[1-4] After the ingestion of systemic fluorides, fluoride is incorporated into developing tooth structure. Topical fluorides work locally on superficial layers of enamel and plaque. Methods of delivering systemic fluorides in the United States include community water fluoridation, school water fluoridation and dietary fluoride supplements.

Topical fluorides may be applied professionally or self-applied. They include fluoride solutions and gels (applied in trays or with a toothbrush or applicator), fluoride dentrifices (toothpastes) and fluoride mouthrinses. Also, topical benefits result from drinking fluoridated water or chewing fluoride tablets.

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THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR THE MONTH OF SEPTEMBER 1987

TABLE I

SUPPLEMENTAL FLUORIDE DOSAGE SCHEDULE*
(In mg. of Fluoride Per Day)

	Parts per Million Fluoride in Water Supply		
Age of Child	<0.3	0.3 to 0.7	>0.7
Birth to 2 yrs.†	0.25	0	0
2 to 3 yrs.	0.50	0.25	0
3 to 13 yrs.†	1.00	0.50	0

* Recommended by the American Dental Association, the American Academy of Pediatrics, and the American Academy of Pediatric Dentistry.
† The American Academy of Pediatrics recommends providing supplements from 2 weeks through at least age 16.

Community water fluoridation is recognized as the most efficient and cost-effective method of providing recommended levels of systemic fluoride for prevention of dental caries.[5-6] Unfortunately, approximately half of Americans drink water that is not optimally fluoridated.[7] In Iowa, 90% of the population served by community water systems receives fluoridated water.[8] However, because the state has an extensive rural population, this is only 66% of Iowa's total population. If all community water systems were fluoridated, 25% of the state's population would remain without access to fluoridated water.

Alternative sources of systemic fluoride are necessary if more children are to have the caries preventive benefits of systemic fluoride. For those children who may still benefit from systemic fluorides and are not receiving fluoridated water, a systemic fluoride supplement in tablet or drop form is a safe and effective means of reducing the incidence of dental caries up to 60%.[9-15] To receive maximum preventive benefits, the supplements must be taken daily from birth until age 13.

Several studies have investigated the extent to which fluoride supplements have been used in the United States.[16-20] In 1978, Margolis and co-workers found 81% of pediatricians and 63% of family practitioners who responded to his survey prescribed supplements.[18] In a fluoride-deficient area in Texas in 1979, 35% of responding physicians reported they routinely prescribed supplements.[19] The American Dental Association found in 1982 79% of responding physicians prescribed fluoride supplements.[17] These studies have shown many providers are not aware of the proper dosage guidelines, contraindications (e.g. fluoridated water) and fluoride concentrations in the area's water supplies. This is true among those prescribing supplements and those not prescribing.

It is quite important children receive the appropriate total dose of fluoride. This can be accomplished only if the practitioner knows the fluoride levels of the patient's home and other water supplies (school, day care, etc.). Fluoride levels exceeding the optimal are associated with an increased risk of dental fluorosis. Although fluorosis is primarily an aesthetic concern, moderate to severe cases often involve pitting and other defects of the tooth surface. To avoid overdosing, the practitioner should know which communities are fluoridated and fluoride concentrations of the water.

A separate water sample should be submitted to determine the fluoride content of each community or individual water supply if the practitioner does not have prior specific knowledge of the level. There can be significant fluctuations in fluoride content from one well to another even in a small geographic area. One should not rely on the results of a sample from a diferent source, no matter how near.

A study was conducted of the frequency and distribution and results of analyses for fluoride content of drinking water samples in Iowa. This included 347 water samples submitted to the University of Iowa Department of Pediatric Dentistry and 232 submitted to the University State Hygienic Laboratory by health professionals and private parties between August, 1983 and February, 1985.

In comparison with the total number of providers in Iowa, only 12% of dentists and less than 1% of physicians most likely to provide diagnostic and preventive services to children submitted water samples.[21, 22]

Guidelines for systemic fluoride supplements are recommended by the American Dental Association, the American Academy of Pediatric Dentistry and the American Academy of Pediatrics. (Table I) The revised pediatric guidelines are now identical to the ADA recommendations except for ages at which supplements are to be initiated and discontinued.[23, 24] In the past, the significantly different dosage schedules caused problems because dentists and physicians were not following the same schedule. Any water fluoride level greater than 0.3 ppm requires adjustment from the full dosage supplement. This study revealed that

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CLINICAL PHARMACOLOGY. INDERAL is a nonselective, beta-adrenergic receptor-blocking agent possessing no other autonomic nervous system activity. It specifically competes with beta-adrenergic receptor-stimulating agents for available receptor sites. When access to beta-receptor sites is blocked by INDERAL, the chronotropic, inotropic, and vasodilator responses to beta-adrenergic stimulation are decreased proportionately.

INDERAL LA Capsules (60, 80, 120, and 160 mg) release propranolol HCl at a controlled and predictable rate. Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours. When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL Tablets. The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol, resulting from the slower rate of absorption of propranolol. Over a twenty-four (24) hour period, blood levels are fairly constant for about twelve (12) hours then decline exponentially.

INDERAL LA should not be considered a simple mg-for-mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose. When changing to INDERAL LA from conventional propranolol, a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval. In most clinical settings, however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect, INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate, systolic pressure and rate pressure product. INDERAL LA can provide effective beta blockade for a 24-hour period.

INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension, it may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic. INDERAL LA is not indicated in the management of hypertensive emergencies.

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris.

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache. The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use.

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis, especially for treatment of exertional or other stress-induced angina, palpitations, and syncope. INDERAL LA also improves exercise performance. The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation. Clinical improvement may be temporary.

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock 2) sinus bradycardia and greater than first-degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL.

WARNINGS. CARDIAC FAILURE. Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely, or INDERAL should be discontinued (gradually, if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following *abrupt* discontinuance of INDERAL therapy. Therefore, when discontinuance of INDERAL is planned, the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

MAJOR SURGERY. The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, eg, dobutamine or isoproterenol. However, such patients may be subject to protracted severe hypotension. Difficulty in starting and maintaining cardiac arrest has also been reported with beta blockers.

DIABETES AND HYPOGLYCEMIA. Beta blockers should be used with caution in diabetic patients if a beta-blocking agent is required. Beta blockers may mask tachycardia occurring with hypoglycemia, but other manifestations such as dizziness and sweating may not be significantly affected. Following insulin-induced hypoglycemia, propranolol may cause a delay in the recovery of blood glucose to normal levels.

THYROTOXICOSIS. Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol may change thyroid function tests, increasing T_4 and reverse T_3, and decreasing T_3.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case, this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS. GENERAL: Propranolol should be used with caution in patients with impaired hepatic or renal function. INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies.

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure. Patients should be told that INDERAL may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

CLINICAL LABORATORY TESTS. Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS. Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension.

Caution should be exercised when patients receiving a beta blocker are administered a calcium-channel-blocking drug, especially intravenous verapamil, for both agents may depress myocardial contractility or atrioventricular conduction. On rare occasions, the concomitant intravenous use of a beta blocker and verapamil has resulted in serious adverse reactions, especially in patients with severe cardiomyopathy, congestive heart failure or recent myocardial infarction.

Aluminum hydroxide gel greatly reduces intestinal absorption of propranolol.

Ethanol slows the rate of absorption of propranolol.

Phenytoin, phenobarbitone, and *rifampin* accelerate propranolol clearance.

Chlorpromazine, when used concomitantly with propranolol, results in increased plasma levels of both drugs.

Antipyrine and *lidocaine* have reduced clearance when used concomitantly with propranolol.

Thyroxine may result in a lower than expected T_3 concentration when used concomitantly with propranolol.

Cimetidine decreases the hepatic metabolism of propranolol, delaying elimination and increasing blood levels.

Theophylline clearance is reduced when used concomitantly with propranolol.

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY. Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

PREGNANCY. Pregnancy Category C. INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose.

There are no adequate and well-controlled studies in pregnant women. INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

NURSING MOTHERS. INDERAL is excreted in human milk. Caution should be exercised when INDERAL (propranolol HCl) is administered to a nursing woman.

PEDIATRIC USE. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

Cardiovascular. Bradycardia; congestive heart failure, intensification of AV block; hypotension; paresthesia of hands; thrombocytopenic purpura; arterial insufficiency, usually of the Raynaud type.

Central Nervous System. Light-headedness; mental depression manifested by insomnia, lassitude, weakness, fatigue, reversible mental depression progressing to catatonia, visual disturbances, hallucinations; vivid dreams; an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics. For immediate formulations, fatigue, lethargy, and vivid dreams appear dose related.

Gastrointestinal. Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic. Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory. Bronchospasm.

Hematologic. Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Auto-Immune. In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous. Alopecia, LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily. If patients are switched from INDERAL Tablets to INDERAL LA Capsules, care should be taken to assure that the desired therapeutic effect is maintained. INDERAL LA should not be considered a simple mg-for-mg substitute for INDERAL. INDERAL LA has different kinetics and produces lower blood levels. Retitration may be necessary, especially to maintain effectiveness at the end of the 24-hour dosing interval.

HYPERTENSION—*Dosage must be individualized.* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic. The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved. The usual maintenance dosage is 120 to 160 mg once daily. In some instances a dosage of 640 mg may be required. The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks.

ANGINA PECTORIS—*Dosage must be individualized.* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three- to seven-day intervals until optimal response is obtained. Although individual patients may respond at any dosage level, the average optimal dosage appears to be 160 mg once daily. In angina pectoris, the value and safety of dosages exceeding 320 mg per day have not been established.

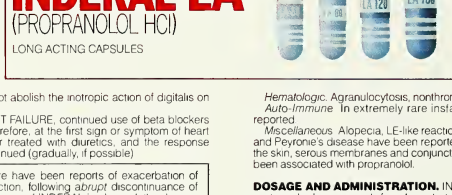
If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS).

MIGRAINE—*Dosage must be individualized.* The initial oral dose is 80 mg INDERAL LA once daily. The usual effective dose range is 160-240 mg once daily. The dosage may be increased gradually to achieve optimal migraine prophylaxis. If a satisfactory response is not obtained within four to six weeks after reaching the maximal dose, INDERAL LA therapy should be discontinued. It may be advisable to withdraw the drug gradually over a period of several weeks.

HYPERTROPHIC SUBAORTIC STENOSIS—80-160 mg INDERAL LA once daily.

PEDIATRIC DOSAGE—At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use.

*The appearance of these capsules is a registered trademark of Ayerst Laboratories



REFERENCES:

1. INDERAL LA National Compliance Evaluation Program. Data on file, Ayerst Laboratories.
2. Ravid M, Lang R, Jutrin I: The relative antihypertensive potency of propranolol, oxprenolol, atenolol, and metoprolol given once daily. *Arch Intern Med* 1985; 145:1321-1323.

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of the 579 total samples analyzed, 51% warranted adjustment. In 33% of cases, reduced supplement dosage was warranted. In 18% of cases, no supplement was indicated, regardless of age. Four percent of the samples had fluoride levels exceeding then recommended EPA guidelines for maximum contaminant level, over twice the optimum level of 1.0 ppm.

The University State Hygienic Laboratory will analyze individual patient's water samples for health professionals. Requests for sample bottles may be made by telephone or letter (with payment accompanying the request to expedite service) to the following address:

University Hygienic Laboratory
Water Fluoride Analysis Program
University State Hygienic Laboratory
Des Moines Branch
H. A. Wallace Building
East 9th and Grand
Des Moines, Iowa 50319
(515) 281-5371
Fee — $9.00

After determining the fluoride levels of a patient's multiple sources of water (either by submitting samples or obtaining information from water companies, schools, Dental Health Section, etc.), the practitioner must determine the supplement dose to prescribe. When considering significant sources of water intake other than home, one must estimate the percentage of daily water intake from each source and consult Table I.

It is essential to determine whether an infant is being exclusively breast-fed, bottle-fed or both. Breast-fed babies should be supplemented fully, since there are very low amounts of fluoride in human milk, even when the mother resides in a fluoridated area.[25] Major manufacturers of milk-based infant formulas have removed fluoride from their products. An infant on milk-based formula now receives fluoride almost exclusively from the water which is mixed with the formula. The practitioner must determine the proportion of bottle-feeding and reduce or eliminate the supplement accordingly for infants receiving nutrition from both sources. Soy-based formulas contain significant levels of fluoride and systemic fluoride supplementation may not be indicated when "ready-to-feed" soy-based formula is used exclusively.[26]

Since excessive fluoride can cause fluorosis, parents should contact the physician when changes occur in the infant's consumption of liquids so the fluoride supplementation can be adjusted. Significant changes in feeding patterns, such as from breast-feeding to bottle feeding or breast-feeding to solid foods, must be reported to the physician so the dosage of fluoride supplements can be adjusted, if necessary.

Fluoride tablets are now available in 0.25, 0.5 and 1.0 mg. fluoride formulations. Several commercial brands are available.[3] Many pharmacies provide a generic product. The tablet should be chewed before swallowing to provide topical benefit. Fluoride drops should be used for those who cannot chew a tablet. No more than 264 mg. NaF, or 120 mg. fluoride, should be prescribed for safety reasons.[3] When combination vitamin-fluoride products are used, care must be taken to ensure that the fluoride dose is optimal. The product should be kept in a "childproof" container in a secure place.

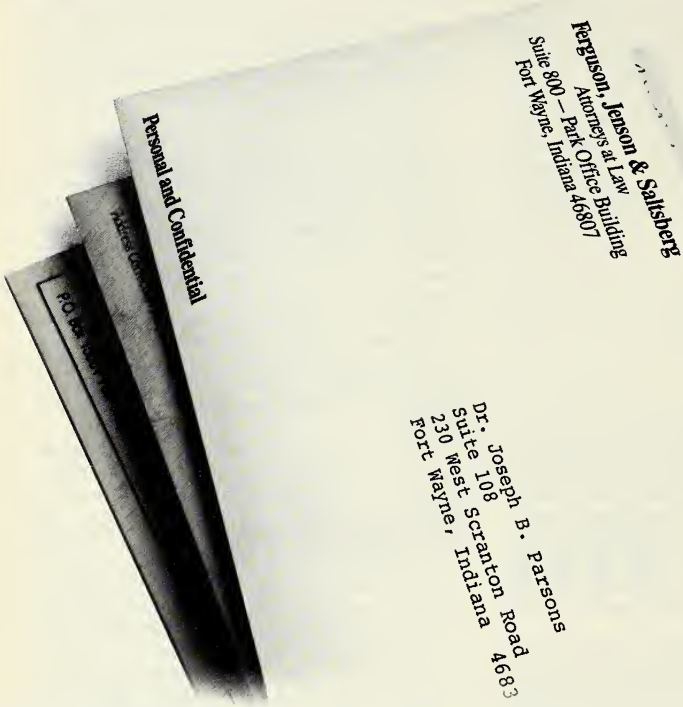
The biggest difficulty is patient compliance.[12-15, 27] Numerous studies have documented the effectiveness of fluoride supplements in reducing dental caries, but the supplementation schedule must be followed conscientiously. These studies have shown the greatest caries reductions have occurred as a result of select populations seeking pediatric dental or medical care on a regular basis, and due to dedicated and enthusiastic pediatricians and dentists who motivated patients to comply with the dosage regimen. From these studies, it is clear the use of fluoride supplements is not promising as a public health alternative to community water fluoridation but is best suited for private practice settings. The physician must routinely encourage and attempt to monitor the child's supplement use.

The medical profession must work closely with dentists and other health professionals if systemic fluorides are to be used to greatest benefit in our population.

References

References noted in this article are available either from the authors or the editors of IOWA MEDICINE.

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Marion E. Alberts, M.D.

The Editor Comments



Sports Medicine

Actions by the IMS Committee on Sports Medicine have been instrumental in promoting improvement of the welfare of high school athletes. Impetus for this laudable action comes from the American Academy of Pediatrics as well as the American Medical Association. Unfortunately, in some areas there remains a degree of exploitation of the high school athlete. In some instances inadequate examination of athletes persists, training facilities and methods are not up-to-date by standards that have been promulgated and exploitation by coaches (and parents) serves ill to the future of the young athlete.

Several years ago, I was called upon to see one of my patients because of consequences of poor advice from his wrestling coach. The prime objective of a wrestler is to meet a certain weight requirement by any number of methods. The lad in question had been advised to undergo a reduction program which included intense sweating while exercising in a rubberized suit and taking inadequate fluids and electrolytes. The young man was weak, dehydrated and needed hospitalization for fluid and electrolyte restoration. Fortunately, due to education of coaches and trainers, such foolish advice is seldom given now.

However, there is still need for education and vigilance of high school (yes, the junior high school level, also) athletic programs. Training must be methodical. Injuries must be scrutinized in a professional manner to avoid complications. Athletic equipment must be top quality for protection against injury. Infections of the skin must be dealt with in a forthright manner to avoid further spread. We could extensively itemize various approaches to the spectrum of sports medicine.

This issue of Iowa Medicine presents positive approaches to the subject. The youth have a right to the best opportunities to exercise their skills under the best conditions possible. Each school should have a program directed to that end.

"The medical profession must be willing to work closely with the schools to promote a proper environment for the athletic program."

Parents must cooperate in this effort. Their children are not only developing athletic skills but also entertaining the public. Unfortunately, the entertainment factors often take precedence or an overzealous parent exercises unwarranted pressures to promote his child. The medical profession must be willing to work closely with the schools to promote a proper environment for the athletic program. Good physical evaluation of the athlete is mandatory. Presence of a medical team at athletic events is important. Proper advice and care to the injured is unquestioned. Close cooperation between athletes, parents, school administrators, coaches, trainers and physicians will enhance the athletic programs of Iowa schools. — M.E.A.

Richard M. Caplan, M.D.

CME Notebook



Will Medical Texts Become Phantoms?

SOMEONE, WHOM I used to think was a friend, foisted upon me a young woman — by telephone (one must be exceedingly clear about such things anymore). She worked for an Eastern firm hired by a publisher of medical textbooks to estimate the marketing future for their products. I learned from her, perhaps with no great surprise, that sales of medical texts had fallen more than 20% in the past several years. Her task was to gather data and opinions, and prognosticate. My opinions, I gathered, were to be part of her data base.

I invite you to pause a moment, as if speaking long distance to her, and muster your own assessment of the circumstances. Call on your personal feelings and behavior, and what you judge to be that of your physician peers. Then read on if you want to know what points I made to her.

Ready? I began by remarking on the decreasing number of enrolled students in the allopathic medical colleges of this country (16,268 entered in fall, 1985, compared to a modern high of 17,268 in the fall of 1981). I presumed that a student purchases more books per year than a resident or practitioner. So, fewer students mean fewer books sold. Next I related that more books are generated than formerly on almost any topic you name, thus producing more competition among titles. Then I spoke of the advent and ubiquity of duplicating machines, which, when combined with widespread violation of copyright laws mean that people selectively copy segments of interest rather than buy the book. I addressed next the greater availability of library services and inter-library loans. Then, and perhaps I should have said it first, I reminded her of the seemingly rapid escalation in book costs during recent years. (Maybe it's no more than the increase in the cost of health services or physicians' incomes, but my perception is otherwise.) The intimidating effect of the prices certainly discourages some discretionary purchases by medical students and leads them to loan and sell to each other more than before.

Then I spoke of computers. This, I suppose, makes publishers feel the way medieval scribes must have felt about Gutenberg's invention of moveable type. Bad enough for them is the spreading use of computers connected telephonically to data bases. That can provide "electronic page turning" so that one can read a book or journal on one's computer screen and print hard copies if desired. Then there is the publisher's bigger worry: the glorious CME vision of a future when every examining room and hospital bed will contain a computer terminal. Problems and questions can thus be raised about the particular patient, and at once there will return data, suggestions, probabilities, warnings, and if one wishes, germane abstracts, articles or text pages. To speak of text pages is to imply that somewhere a book will exist, but then again, I have to wonder. Maybe authors will generate only electrical charges on some disc and never ink on a

Dr. Caplan is Associate Dean for Continuing Medical Education at The University of Iowa College of Medicine.

printed page, unless a user wants to print a hard copy of what appears on the computer screen. Some "books" have existed for years only as magnetic blips.

Maybe the financial salvation for publishers is to "position themselves" quickly by diversifying into software programs, or perhaps taco chips, rubber tires, insurance policies, and so on. I'm so glad I don't have to make those decisions. Fortunately, I'll be able to enjoy for at least a few more years the luxury of taking a book from my shelf or going to the library to read in the manner I still know best. But watch out — this, like everything else, is changing fast.

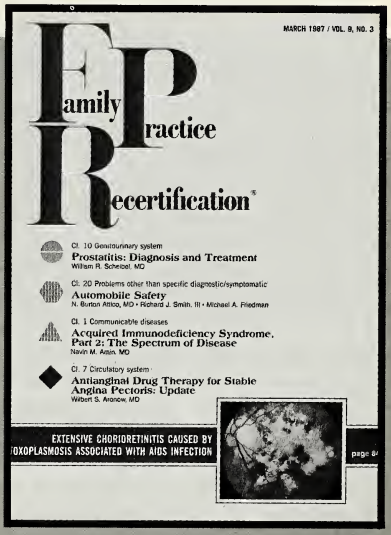
If you'd like a suggestion about something fun to read, try *The Phantom Toll Booth* by Norton Juster, first published in 1961 by Random House. My children all loved it and have urged it on me for years. I finally read it when one of them put a copy in my hand. It's a delightful children's book (in precisely the same way that *Alice in Wonderland* is a children's book). If you'd like a modern version of Alice, give this a try. It will challenge your medical sense, too. For example, when the hero complains that "there is no such illness as lack of noise," the doctor replies, "Of course not . . . that's what makes it so difficult to cure. I only treat illnesses that don't exist: that way, if I can't cure them, there's no harm done — just one of the precautions of the trade." And later a wizard ("Oz"-like) called "the mathemagician" remarks gently to our hero "that the only thing you can do easily is be wrong, and that's hardly worth the effort." Read it soon, in a book, before the palpable heft of it is transformed forever into magnetic impulses that will reach your consciousness percutaneously by direct cerebral input, bypassing the sluggish mechanism of eyes, visual cortex and communicating pathways. (I'm only kidding . . . I hope.) Maybe you'd like to rush out to buy a medical text, just for old time's sake?

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We'll be happy to have you call to arrange a review of your insurance situation. Please ask for Mr. Bernie Lowe and Mr. John Bain. We're at The Prouty Company.

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Drug Therapy Review

REYNOLD SPECTOR, M.D., Editor

The Fluoroquinolone Antibiotics: Clinical Indications and Implications of Several New Derivatives of Nalidixic Acid

THE FLUOROQUINOLONES COMPRISE a group of antimicrobial compounds that has become the focus of considerable interest in recent years. The history of these agents can be traced to nalidixic acid, which has been in use since 1962. This antibacterial agent has been of limited clinical value for several reasons. It is poorly absorbed from the gastrointestinal tract, microbial resistance to its effects develops rapidly, and the incidence of adverse reactions is high. The already circumscribed scope of clinical utility of nalidixic acid was further reduced with the advent of modern β-lactam antibiotics with good antibacterial activity and good concentration in the urine.

Since the release of nalidixic acid the pharmaceutical industry has synthesized at least 6 new quinolones now in various phases of development: norfloxacin, ciprofloxacin, enoxacin, ofloxacin, pefloxacin, and amifloxacin. These fluorinated derivatives of nalidixic acid are greatly improved over the parent compound. They are better absorbed from the gastrointestinal tract, resulting in higher blood and tissue levels. Their antibacterial activity is enhanced and there appear to be fewer adverse reactions.

In this paper we will discuss the pharmacokinetics, mechanism of action, adverse effects, drug interactions, and clinical uses of this promising new group of antibiotics.

Pharmacokinetics

The most extensively studied of the newer quinolones are ciprofloxacin and norfloxacin. Both of these agents are rapidly absorbed from the gastrointestinal tract after oral administration, with the absorption of ciprofloxacin exceeding that of norfloxacin. Antacids reduce the absorption of ciprofloxacin, but food does not. Serum protein binding of both drugs is low. Peak serum levels following oral dosing range from 1.35 to 1.45 μg/mL for a 250-mg dose. The half-life of norfloxacin is 2 to 4 hours and that of ciprofloxacin 3.8 to 4.5 hours. Thirty to 45% of both drugs are excreted by the kidney, and urine levels reached after a single 200- to 250-mg dose of ciprofloxacin are extremely high (124-236 μg/mL). Doses must therefore be reduced for patients with renal failure. Importantly, significant levels are also attained in prostatic tissue, the usual source of reseeding in males with recurrent bacterial urinary tract infections.

Mechanism of Action

The quinolones exert their bactericidal activity by inhibiting enzymes that control the spatial geometry of DNA *in vivo*, the DNA topoisomerases. This group of enzymes and the details of their function are incompletely understood, but it is evident that proper tertiary structure is necessary for such essential processes as replication and repair of DNA.

(Please turn to page 458)

This information for Iowa physicians is furnished and sponsored by the University of Iowa Hospitals and Clinics.

The quinolones disrupt these processes by inhibition of bacterial DNA gyrase (topoisomerase II).[1]

Microbial resistance to nalidixic acid is chromosomally mediated; the DNA gyrase of resistant organisms is not inhibited by this agent. Serial passage of organisms in the presence of subinhibitory concentrations of quinolone antibiotics selects for mutants that show cross resistance for other members of the class.[2] The *in vivo* significance of this *in vitro* observation is unclear. It is clear, however, that the rate at which mutants are selected is lower for the newer quinolones than for nalidixic acid.

Spectrum of Antibacterial Activity

Nalidixic acid was noted for its narrow antibacterial spectrum confined primarily to aerobic gram-negative bacilli such as *E. coli*, Klebsiella, Proteus, and Enterobacter. The newer quinolones are both more active on a weight basis and active against a much broader range of organisms. The concentrations of norfloxacin and ciprofloxacin necessary to inhibit the growth of 90% of *E. coli* strains tested (MIC_{90}) were .12 μg/mL and .03 μg/mL respectively. This contrasts with 4.0 μg/mL for nalidixic acid. The MIC_{90}'s for gram-negative rods such as *Klebsiella pneumoniae*, Enterobacter species, Citrobacter species, Serratia, Shigella, Salmonella, Campylobacter, Vibrio, Proteus, Morganella, and Providencia ranged from .12 to 3.0 μg/mL. Significantly, both drugs are active against *Pseudomonas aeruginosa* with MIC_{90}'s of 3.1 and 0.5 μg/mL respectively.[1] The quinolones are also quite active *in vitro* against Neisseria species, including penicillinase-producing *Neisseria gonorrhoeae* (PPNG), *Hemophilus influenzae*, and *Legionella pneumophilia*.

The quinolones are less active against the gram-positive cocci than against gram-negative organisms. They are also inactive against gram-positive and gram-negative anaerobes. Ciprofloxacin is active at clinically achievable concentrations against coagulase positive and negative staphylococci, including methicillin-resistant *Staphylococcus aureus* (MRSA). Both ciprofloxacin and norfloxacin do poorly against streptococci, with MIC_{90}'s of 2 μg/mL for the former and greater than or equal to 4 μg/mL for the latter.[1]

Clinical Efficacy

Urogenital Infections

The performance of the quinolones in the treatment of urogenital tract infections has been extensively evaluated. these antibiotics seem to have their greatest potential in the treatment of complicated urinary tract infections caused by multiple-antibiotic-resistant *E. coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Proteus mirabilis*, and *Staphylococcus aureus*. A multicenter randomized, double-blind study of 886 patients found norfloxacin 400 mg po bid equivalent to trimethoprim-sulfamethoxazole 160 mg/800 mg po bid in the treatment of urinary tract infections.[3] This equivalence has been confirmed in 6 other prospective, randomized, but nonblinded studies.[4-9] Comparison of norfloxacin with amoxicillin or nalidixic acid in similarly designed trials showed therapeutic equivalence of norfloxacin to these other agents as well.[10,11] Nine studies assessed antibiotic susceptibilities after treatment and found therapeutic failure associated with emergence of norfloxacin resistance in only 1% of 397 infections.[4-7,9,10,12-14]

Norfloxacin, 400 mg orally for 2 doses separated by 4 hours, was shown to be equivalent to spectinomycin 2 gm intramuscularly in the treatment of gonococcal urethritis in men.[15] Both drug regimens achieved a 100% cure rate despite a 46% prevalence of penicillinase-producing gonococci in the study population.

Other Infections

Ciprofloxacin has recently been evaluated as initial therapy for traveler's diarrhea and was found to be equivalent to trimethoprim-sulfamethoxazole in the control of clinical symptoms.[16] Both agents were superior to placebo.

The fluoroquinolones are capable of reaching high tissue and blood levels and clearly show the potential for treatment of infections outside the urinary tract. A number of additional potential uses for these drugs have been suggested. These include prostatitis, selective decontamination of the gastrointestinal tract of neutropenic patients, pneumonia caused by gram-negative bacilli when oral therapy is desirable, upper respiratory tract

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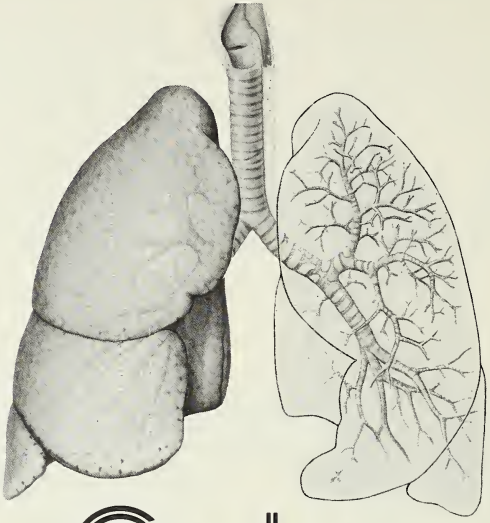
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Note: Ceclor is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

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Summary. Consult the package literature for prescribing information.

Indications: Lower respiratory infections, including pneumonia, caused by susceptible strains of *Streptococcus pneumoniae, Haemophilus influenzae,* and *Streptococcus pyogenes* (group A β-hemolytic streptococci).

Contraindication:
Known allergy to cephalosporins.

Warnings:
CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY. POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS.

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:
• Discontinue Ceclor in the event of allergic reactions to it.
• Prolonged use may result in overgrowth of nonsusceptible organisms.
• Positive direct Coombs' tests have been reported during treatment with cephalosporins.
• Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
• Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
• Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)
Therapy-related adverse reactions are uncommon. Those reported include:
• Gastrointestinal (mostly diarrhea): 2.5%.
• Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
• Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever): 1.5%; usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.
• Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
• As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
• Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
• Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%; and, rarely, thrombocytopenia.

Abnormalities in laboratory results of uncertain etiology
• Slight elevations in hepatic enzymes.
• Transient fluctuations in leukocyte count (especially in infants and children).
• Abnormal urinalysis; elevations in BUN or serum creatinine.
• Positive direct Coombs' test.
• False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinitest® tablets but not with Tes-Tape® (glucose enzymatic test strip, Lilly).

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colonization with MRSA, and gram-negative bacillary osteomyelitis and sepsis. Investigators have begun to look at these areas, and results are promising.[17-21] Further study is needed, however, before the ultimate role of the fluoroquinolones in these infections can be determined.

Adverse Effects and Drug Interactions

The fluoroquinolones are generally well tolerated. Gastrointestinal symptoms are nonspecific, chiefly nausea, anorexia, or diarrhea, and very rarely have been severe enough to discontinue therapy in clinical trials. The product monograph for norfloxicin indicates less than 1% incidence of these 3 specific symptoms and a total gastrointestinal symptom reporting of less than 3% in premarket testing. Central nervous system complaints were also nonspecific and minor, chiefly dizziness, headache, insomnia, and drowsiness. Mild abnormalities of aminotransferases and eosinophilia have also been reported infrequently. Crystalluria has been noted following 1200 to 1600 mg doses of norfloxacin.[22] Cartilage toxicity has been seen when nalidixic acid has been given to young animals; therefore, these agents should not be used in the pediatric age group.

Enoxacin has been found to prolong the elimination half-life of theophylline in some patients, resulting in toxic levels and severe nausea and vomiting.[21] This interaction has not been seen between ciprofloxacin or pefloxacin and theophylline.[24]

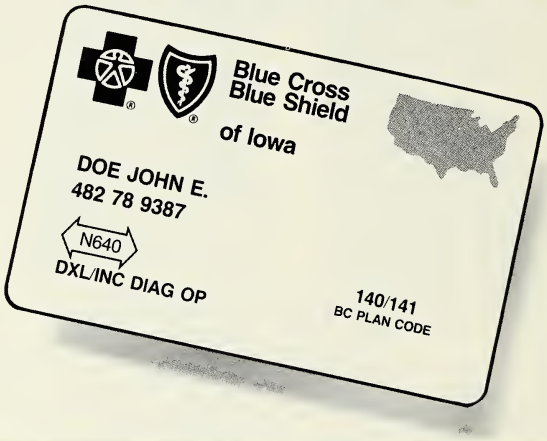
Conclusions

The fluoroquinolones present distinct advantages over nalidixic acid, namely higher potency, broader spectrum of activity, and superior safety profile. Early clinical studies have demonstrated effectiveness in urinary tract infections, gonorrhea, and traveler's diarrhea. Potential roles for these drugs exist in the treatment of other infections where good antigram negative activity and oral bioavailability would be advantageous. The ultimate place of these antimicrobials in our therapeutic armamentarium will not be determined until further experience is accumulated. For the present, norfloxacin should be reserved for the treatment of complicated urinary tract infections caused by organisms resistant to better known, less expensive agents such as amoxicillin and trimethoprim-sulfamethoxazole. — TIMOTHY L. BURKE, M.D., and CHARLES M. HELMS, M.D., Ph.D, *Division of Infectious Diseases, Department of Internal Medicine.*

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Detection, Management and Control of Antibiotic Resistant Strains of Neisseria Gonorrhoeae

PENICILLINASE-PRODUCING Neisseria gonorrhoeae (PPNG) are gonococcal strains that have acquired an extrachromosomal element, or plasmid, which synthesizes beta-lactamase, an enzyme that destroys the structural integrity of the beta-lactam ring of penicillin. Penicillin resistant Chromosomally Mediated Resistant Neisseria gonorrhoeae (CMRNG) strains do not produce beta-lactamase.

Chromosomally mediated resistance is not limited to penicillin, but is a more general phenomenon which can include tetracycline, cefoxitin, spectinomycin and other aminoglycosides. In most instances to date, these strains have not been clinically significant, either because the levels of resistance have not been high or because the antibiotic in question was not used for therapy. Tetracycline Resistant Neisseria gonorrhoeae isolates with plasmid-mediated high-level tetracycline (TRNG) were first identified in 1985. Fortunately, most TRNG strains identified thus far have been sensitive to penicillin. Nearly all patients with TRNG who have been treated with tetracycline alone have failed therapy.

While most strains of N. gonorrhoeae in the United States are susceptible to a broad range of antimicrobial agents, relative or absolute resistance to some agents, especially penicillin, is a rapidly growing problem. With the introduction and regular use of the sulfonamides and penicillin in the 1940's and 1950's, progressive resistance to these drugs evolved. The recommended therapeutic dose of aqueous procaine penicillin G (APPG) for uncomplicated gonorrhea rose from 50,000 units in 1945 to 4.8 million units in 1972 — a 96-fold increase. The discovery of beta-lactamase-producing N. gonorrhoeae in 1976 marked the beginning of an accelerated trend toward greater antibiotic resistance. Since the emergence of PPNG, clinically significant resistance has been described for the 3 most widely used classes of drugs — penicillins, tetracyclines and aminoglycosides.

The form of resistance with the greatest impact on public health programs and resources is PPNG. The first case of PPNG in the United States was reported in March, 1976. Incidence rose slowly through 1979 and most infections were acquired outside the United States or could be traced to imported cases.

From 1980 through 1982, reported incidence rose rapidly and most cases were no longer linked to overseas travel. Over 4,500 cases of PPNG were reported in 1982. The incidence dropped in 1983 to under 3,800 cases, but rose in 1984 to nearly the 1982 level. In 1985, reported cases more than doubled, reaching over 8,800. The only states in 1985 which did not report at least one case of gonorrhea caused by a resistant strain were Nevada and South Dakota. In 1986, only Idaho and Nevada reported no cases and the United States total reached 16,554.

The first penicillin-resistant CMRNG outbreak in the United States occurred in North Carolina in 1983. Since then, these organisms have been reported from several areas. Between January 1983 and October 1984, 185 CMRNG cases were reported from 22 states other than North Carolina. Testing for CMRNG is still not widespread. The true scope of the problem remains unclear. While many individual cases and clusters of TRNG have been reported since the first cases were identified, most have not resulted in therapy failure since

(Please turn to page 462)

This information on public health is furnished and sponsored by the Iowa Department of Public Health.

IOWA DEPARTMENT OF PUBLIC HEALTH

(Continued from page 461)

CDC treatment guidelines were followed regarding dual therapy with penicillin.

There are no clinical distinctions between the infections caused by resistant strains of N. gonorrhoeae and the infections caused by sensitive strains. In a community with a high prevalence of resistant strains, however, the sequelae of acute gonococcal infection, such as pelvic inflammatory disease (PID), gonococcal ophthalmia and disseminated gonococcal infection (DGI), are likely to increase as the preventable conditions of the "inadequately treated" are added to those of the "never treated."

Inadequate therapy can also result in an extended period of infectiousness and increase the number of sex partners who become infected.

Resistant strains of N. Gonorrhoeae in a community also have an adverse impact on the costs of patient management; additional laboratory tests, added drug costs, extra clinic visits and more extensive disease intervention activities. While some of these costs (e.g., alternative drugs) are more easily attributed to antimicrobial resistance per se than others (e.g., the costs of supervising disease intervention specialists), the aggregate fiscal impact on the public health budget of an infected area is substantial.

At this time, 250 mg of ceftriaxone IM in a single dose is the regimen favored for uncomplicated gonorrhea in patients with antimicrobial-resistant strains because sufficient data exist to substantiate its efficacy. While some investigators report therapeutic success at a lower dose (e.g., 125 mg), insufficient data exist to make a general recommendation, especially for areas experiencing a high prevalence of resistant strains. As data accumulate from clinics using 125 mg as routine dosage, the choice of the smaller dosage may prevail. The concern regarding use of the 125 mg dosage is that it may potentiate the development of ceftriaxone resistant strains. Thus, it is particularly important those areas with a high proportion of resistant strains maintain a sensitive monitoring system for ceftriaxone resistance. The national Isolate Monitoring System coordinated by the Centers for Disease Control will examine ceftriaxone resistance in selected areas of the United States and report this on a quarterly basis in the Morbidity and Mortality Weekly Report (MMWR). Some minimal ceftriaxone resistance has been seen sporadically, but none approaches clinical significance to date.

Treatment of Adults with Gonococcal Infection

Treatment choices for uncomplicated urethral, endocervical, pharyngeal, or rectal infections, in PPNG endemic and hyperendemic areas: (1) *Ceftriaxone* 250 mg IM plus *Tetracycline* HCL 500 mg by mouth 4 times daily for 7 days. (2) *Doxycycline* 100 mg by mouth twice daily for 7 days. (3) For patients in whom tetracyclines are contraindicated or not tolerated, the single dose regimen may be followed by *erythromycin base* or *stearate* 500 mg by mouth 4 times daily for 7 days or (4) *Erythromycin ethyl succinate* 800 mg by mouth 4 times daily for 7 days.

The previous article was extracted from *Policy Guidelines for the Detection, Management and Control for Antibiotic-resistant Strains of N. Gonorrhea,* Division of Sexually Transmitted Diseases, Centers for Prevention Services, Centers for Disease Control, Atlanta, GA 30333.

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July 1987 Morbidity Report

Disease	July 1987 Total	1987 to Date	1986 to Date	Most July Cases Reported From These Counties
Aids	6	26	10	NA
Amebiasis	2	18	24	Boone, Story
Brucellosis	0	3	1	
Chickenpox	90	7570	6629	Scattered
Campylobacter	68	204	191	Scattered
Cytomegalovirus	4	13	12	Black Hawk, Dubuque, Linn
Eatons Agent Infection	2	39	6	Jefferson, Linn
Encephalitis, viral	2	3	6	Lee, Mills
Erythema Infectiosum	5	880	262	Clinton
Gastroenteritis (GIV)	56	10792	11686	Scattered
Giardiasis	35	163	171	Scattered
Hepatitis, A	3	78	27	Black Hawk, Pottawattamie
Hepatitis, B	13	82	53	Scattered
Hepatitis, Non A-B	5	19	16	Buchanan, Crawford, Dubuque, Linn, Mills
Hepatitis type unspecified	2	5	0	Fayette, Pottawattamie
Herpes Simplex	106	705	725	Scattered
Herpes Zoster	0	0	2	
Histoplasmosis	0	9	17	
Infectious mononucleosis	0	130	153	
Influenza, lab confirmed	0	67	247	
Influenza-like illness (URI)	70	24685	71716	Scattered
Legionellosis	1	6	6	Polk
Malaria	1	3	1	Johnson
Meningitis aseptic	9	23	21	Scattered
bacterial	10	57	57	Scattered
meningococcal	0	3	11	
Mumps	17	371	20	Scattered
Pertussis	7	15	11	Cerro Gordo, Floyd, Jones, Polk, Webster
Rabies in animals	17	175	115	Scattered
Reye Syndrome	0	0	0	
Rheumatic Fever	0	2	6	
Rubella (German measles)	0	1	1	
Measles	0	0	0	
Salmonellosis	14	85	132	Scattered
Shigellosis	10	21	4	Scattered
Toxic Shock Syndrome	1	4	6	Louisa
Tuberculosis total ill	7	26	29	Scattered
bact. pos.	7	26	26	Scattered
Typhoid Fever	0	0	1	
Venereal diseases:				
Gonorrhea	278	1766	2100	Scattered
Chlamydia	322	2058	1392	Scattered
Syphilis	1	12	6	Polk

Other Non-Reportable Diseases: Enterovirus — 1, Johnson; Listeria Monocytogenes — 1, Humboldt, 1, Webster; Lyme Disease — 1, Lee; Trichuris Trichiura — 1, Johnson, 1, Louisa, 1, Washington; Ureaplasma Urealyticum — 1, Johnson, 1, Louisa, 1, Washington.

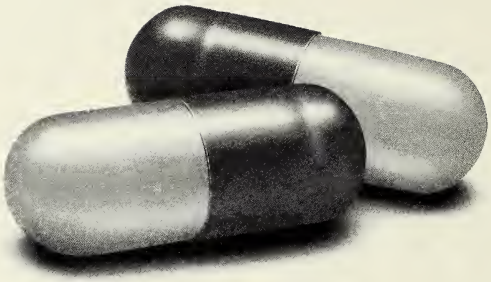
Eye Care for Iowa's Elderly

Since the National Eye Care Project started in March 1986, over 1,817 Iowans have called the toll-free Helpline 1-800-222-EYES, a public service program sponsored by Iowa's eye physicians and surgeons.

A total of 18 elderly Iowans have been examined and treated for a potentially blinding eye disease related to diabetes. In addition, the program has uncovered 366 cases of cataracts, 35 cases of glaucoma and 78 cases of macular degeneration — serious eye diseases that in many cases can lead to blindness.

By calling the Helpline, U.S. citizens or legal residents 65 and over who do not already have access to an eye physician are eligible to receive services. Volunteer ophthalmologists treat program participants at no out-of-pocket cost and will accept Medicare assignment or insurance coverage as payment in full. For the truly needy with no Medicare coverage, care is offered without charge.

"The elderly often feel that nothing can be done to prevent blindness, or they lack the financial resources to seek needed treatment. We're working to remove these obstacles," said Robert D. Whinery, M.D., president of the Iowa Academy of Ophthalmology.



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About Iowa Physicians

Richard A. Young, Clarion, was honored at an open house commemorating his 40 years in medical practice in Clarion. **Dr. Ronald J. Creswell** has joined Spencer Medical Associates in Spencer. Dr. Creswell received the M.D. degree at the University of Nebraska School of Medicine in Omaha and served his family practice residency at the Siouxland Medical Education Foundation in Sioux City. **Dr. Douglas W. Laube,** professor of obstetrics and gynecology at the U. of I. College of Medicine, has been appointed to a 3-year term on the Council on Resident Education in Obstetrics and Gynecology. **Dr. Arthur L. Sciortino,** Council Bluffs, was 1 of 4 faculty members and administrators honored at Creighton University's commencement exercises. Dr. Sciortino, a retired clinical associate professor of pathology, received an emeritus citation in recognition of his service to the University. **Dr. Hormoz Rassekh,** Council Bluffs, has been elected to the board of directors of the Federation of State Medical Boards of the United States. Dr. Rassekh is chairman of the Iowa State Board of Medical Examiners. A past IMS president, he has also served on the AMA Ad Hoc Committee on Foreign Medical Graduates and its Advisory Committee on a Health Policy Agenda for the American people. He is a fellow of the American Psychiatric Association.

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ABOUT IOWA PHYSICIANS

(Continued from page 465)

Dr. Brian Dvorak and **Dr. John Hilsabeck** have joined Dr. Jeffry Peterson in Spencer. Dr. Dvorak received the M.D. degree at the U. of I. College of Medicine and served his family practice residency at the Siouxland Medical Education Foundation in Sioux City. Dr. Hilsabeck received the M.D. degree at the U. of I. College of Medicine and served his family practice residency at Broadlawns Medical Center in Des Moines. **Dr. Gregory S. Severson** has joined Clinical Laboratories, Inc. in Ames and will be based in Carroll. Dr. Severson received the M.D. degree and completed his pathology residency at the U. of I. College of Medicine. **Dr. Bodo Treu** has joined Dr. Donald Soll in Denison. Dr. Treu received the M.D. degree at the University of Nebraska School of Medicine in Omaha and completed his family practice residency in Minneapolis, Minnesota. **Dr. Timothy Peterson,** Des Moines, was the guest speaker at the 12th Annual Governor's Traffic Safety Conference in Ames. Dr. Peterson is coordinating a grant from Traffic Safety Now to study seat belt trauma and is on the Iowa Department of Public Health's Task Force for Emergency Medical Services.

Dr. Dale L. Roberson has been named president of the Linn County Medical Society. Other officers are — Dr. Dave A. Rater, president-elect; Dr. Dennis Boatman, vice president; and Dr. John P. Jacobs, secretary. All are Cedar Rapids physicians. **Dr. Greg L. Morford** began family practice in Lake View in July. Dr. Morford received the M.D. degree from the University of Juarez in Mexico; took postgraduate work at Southwestern Hospital in El Paso, Texas and the University of Colorado, and completed his family practice residency at Iowa Lutheran Hospital in Des Moines. **Dr. Donald J. Ahrenholz,** Waterloo, has been named president of the Iowa Society of Plastic and Re-

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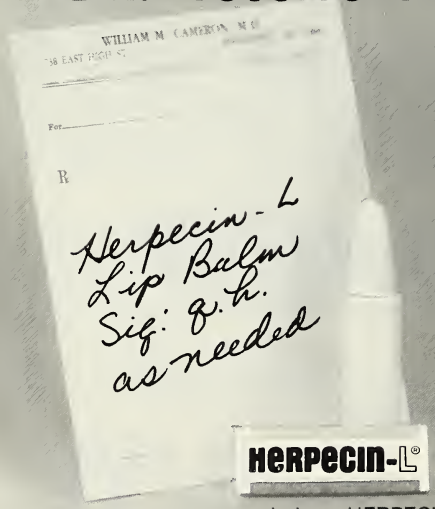
(Continued from page 466)

constructive Surgeons and Dr. Ivan Pakiam, Des Moines, secretary-treasurer.

Dr. Ralph H. Congdon, Davenport, was a guest lecturer at the College of Medicine in the Universidad Autonoma De Yucatan, Merida, Yucatan. Speaking as a participant in the Partners of the Americas exchange program, Dr. Congdon spoke on sports medicine and helped the College develop a curriculum in sports medicine. **Dr. Paul G. Manning,** Clinton, has been named a Diplomate in Pulmonary Medicine. **Dr. Russell H. Watt** and **Dr. John M. Graether,** Marshalltown, have been named charter members of the American College of Eye Surgeons. Dr. Watt has been associated with the Wolfe Clinic in Marshalltown for 28 years and Dr. Graether has been with the Clinic for 25 years. **Dr. Herbert Gude,** Iowa Falls, has been named president-elect of the US Section of the International College of Surgeons. Dr. Gude received the M.D. degree at Creighton University School of Medicine in Omaha; and served his surgery residency at St. Elizabeth's Hospital in Lafayette, Indiana. He began medical practice in Iowa Falls in 1960.

Dr. Salwa Albaghdadi, Clinton, has been named a Fellow of the College of American Pathologists. Dr. Albaghdadi received his medical education at Mosul Medical School, Mosul, Iraq and served his pathology residency at Mount Sinai Hospital in Cleveland, Ohio. **Dr. David G. Paulsrud,** Sioux City, was named City Council member to fill the unexpired term of the late Mayor Conny Bodine. **Dr. Ron Myrom** recently began family practice in Manson. Dr. Myrom received the M.D. degree at the University of Minnesota and com-

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pleted his internship and family practice training at the University of California, Davis.

Dr. Neil Williams, Cedar Falls, recently was honored by the Cedar Falls Chamber of Commerce. Dr. Williams received the Representative Citizen Award. He was cited for his mission work overseas and his long history of service in Cedar Falls. **Dr. George E. Drake** has joined the Des Moines Medical Group. Dr. Drake received the M.D. degree from Michigan State University College of Human Medicine and completed his family practice internship and residency at Grand Rapids Area Medical Education Center in Grand Rapids, Michigan. **Dr. George F. Canady,** Jefferson, has retired from medical practice. Dr. Canaday received the M.D. degree at the University of Nebraska School of Medicine. He began medical practice in Jefferson in 1951. **Dr. Tobin Jacks** has joined the Park Clinic in Hampton. Dr. Jacks received the M.D. degree at the U. of I. College of Medicine and completed his family practice residency in San Bernadino, California. **Dr. Keith Devries** recently began the practice of cardiology at the Fort Dodge Medical Center. Dr. Devries received his medical education at the University of Manitoba, Canada; interned at Toronto General Hospital in Toronto, Ontario; served his residency at the Health Sciences Center and St. Boniface Hospital in Manitoba; then had a fellowship with the Royal College of Physicians, followed by a 3-year cardiology fellowship.

Deaths

Dr. Byron M. Merkel, 81, Des Moines, died July 14 at Wesley Acres Care Center in Des Moines. Dr. Merkel received the M.D. degree at the U. of I. College of Medicine; interned at Harper Hospital in Detroit and completed his otolaryngology residency at University of Iowa Hospitals. He was a past president and life member of the Polk County Medical Society; member of American Academy of Otolaryngology; American Academy of Preventive Medicine; Medical Library Club, and life member of the Iowa Medical Society.



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In the Public Interest

A Healthy Tradition

CONCERN OVER THE HEALTH of young athletes is certainly nothing new at the Iowa Medical Society. The IMS and its individual members have a long tradition of involvement in the medical side of interscholastic athletic competition.

The Society's Committee on Sports Medicine, comprised of family physicians, orthopedic surgeons, pediatricians and other interested specialists, has been in existence for over 25 years. This committee is involved in various projects designed to keep young athletes healthy and has an excellent working relationship with the Iowa High School Athletic Association (IHSAA).

Through the Committee on Sports Medicine, physicians are provided for the state high school basketball and wrestling tournaments held in Des Moines each year. In addition, the committee has assumed the ongoing responsibility of reviewing and updating examination forms for high school sports physicals. Committee members have continually stressed the importance of thorough and professional preparticipation examinations.

The Society played an important role in the first Iowa Games, the extremely successful multi-sports festival for amateur athletes held in Ames this August. The IMS contributed toward funding for the games; and Mark Broderson, M.D., an Ames orthopedic surgeon and member of the Committee on Sports Medicine, held a seat on the Iowa Games Board of Directors. Dr. Broderson was officially in charge of "the health and safety" of those participating in the games.

The IMS, the IHSAA, the Iowa Medical Foundation and Drake University co-sponsor a semi-annual Sports Medicine Conference for coaches, trainers, school administrators and physicians. Preliminary plans for the 1988 Sports Medicine Conference include hands-on sessions on weight programs, taping and other crucial issues for high school coaches and trainers.

Last year, IMS member physicians were instrumental in establishing a statewide computerized sports injury registry at the University of Iowa Sports Medicine Department. This registry will enable high school athletic trainers to pinpoint problem areas and thus prevent injuries to young men and women participating in high school athletics. In April of 1987, individual IMS members brought to the House of Delegates several resolutions regarding equestrian safety. The resolutions encouraging use of protective headgear and more educational programs for horseback riders were overwhelmingly approved by the House.

One of the most important sports medicine projects solidly supported by the IMS was a study designed to develop a formula to serve as a guideline for reasonable minimal weight in high school wrestlers. The Society gave financial support to the project because of physicians' concern over the health implications of weight-cutting by Iowa's wrestlers. The results of the study were published in the October, 1985 issue of IOWA MEDICINE. Involved physicians are now encouraging implementation of minimal weight formulas on a voluntary basis in Iowa high schools.

Finally, as several authors in this issue have stressed, there are dedicated IMS members all over Iowa who serve as team physicians and insure that professional medical care is instantly available to high school athletes. In an age when demands on physicians have increased ten-fold, this gift of time and talent is much appreciated by those in charge of interscholastic athletics.

Indeed, as long as there are young people participating in sports, there will be Iowa physicians who play an active role in keeping them healthy.

IowaMedicine

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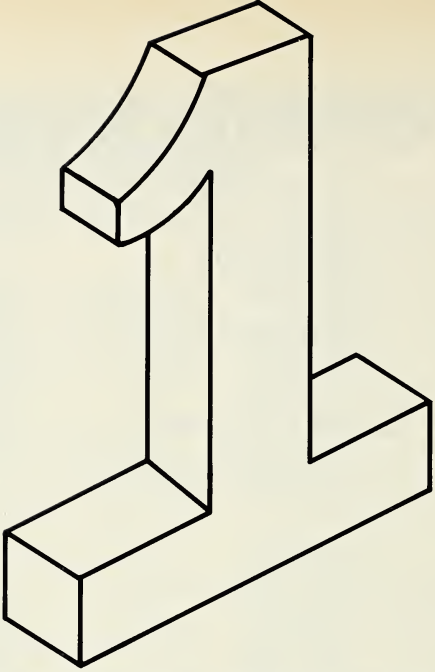
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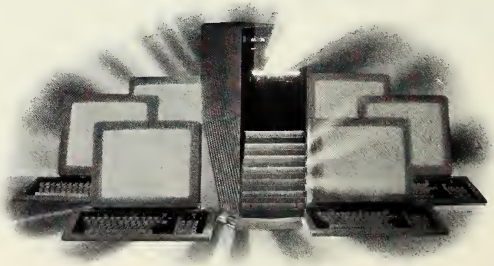


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Why I Belong

WHY BELONG to a medical society? What are the benefits?

I've puzzled over these questions many times. The answers always seem vague rationalizations — reasons made up after the fact. Do I belong because I'm a joiner? Do I belong so I won't be an outsider?

When I first joined the IMS, I had just started practicing. I wanted to show the world I was a real doctor. I guess belonging made me real. I didn't have any experience and I could use the cumulative experience of the Society to back me up.

I had to mature to realize the IMS didn't always represent the way I thought about issues. Sometimes my experiences in actual practice didn't jibe with what the Society said. It took a lot of maturing to understand the Society had to represent many different ideas and experiences, to meld them into a position that represented all physicians. I had to learn to give up some of my personal biases and espouse the IMS stance for the good of the whole.

I believe the IMS represents me in situations where a single physician's voice would have no impact. I believe the IMS can speak for medicine as an entity. I believe the IMS is my voice in dealing with the government, insurance companies and alternate delivery systems.

I believe if I didn't belong to the IMS I'd be like a man without a country. With the IMS, I feel like I belong. I have a foundation. I have a family.

That's why I belong to the Iowa Medical Society.

D Walter MD

Dennis J. Walter, M.D.
President

Why Belong To The IMS?

There are as many reasons for membership in the IMS and organized medicine as there are individual physicians. For this month's special membership issue, **IOWA MEDICINE asked a cross section of physicians to share their feelings about the Iowa Medical Society and what it does for Iowa physicians. This article also contains thoughts on membership from IMS Auxiliary president and executive vice president of the IMS.**

"Striving for 100%"

Members of the IMS Judicial Council recognize the lifeblood of any association is its membership. We are very proud that close to 90% of Iowa physicians belong to the Iowa Medical Society. Almost all IMS members paid a special dues assessment approved by the House of Delegates for use in the liability reform campaign. It is this enviable level of support that makes the IMS a vital and highly-respected organization. Iowa physicians believe in organized medicine and their Society.



R. L. Kent, M.D.

The IMS Judicial Council, which orchestrates membership activities, is comprised of 16 physicians representing different areas of Iowa. Each Councilor is charged with representing the viewpoint of physicians in their area and communicating these views to the IMS Executive Council. The Executive Council determines IMS policy between annual meetings of the House of Delegates.

Membership, ethics and discipline are the primary responsibilities of the Judicial Council. The Council approves all membership applications, implements and oversees all membership recruitment and retention campaigns and decides all questions of ethics and discipline for members. Councilors take an active role in member recruitment, including one-on-one contacts which have proven extremely successful.

We thank Iowa physicians for their invaluable support. Though our participation level is consistently high, we will continue striving for 100% membership. We urge each of you to become involved in the activities of the IMS and to communicate your concerns and ideas to the Councilor in your district. — *Robert L. Kent, M.D., Burlington, Iowa, Chairman, IMS Judicial Council.*

"Be Proud of Organized Medicine"

"DR. PARROTT, FORMER AMA PRESIDENT, DEAD AT 72." This headline in the recent AMA NEWS did not have special meaning for most of us. When he was chosen AMA President-elect in 1974, Dr. Max Parrott made a statement regarding organized medicine which I believe is as true today as it was then. He said, "If the AMA were to dissolve today, it would have to be reinvented tomorrow because it's absolutely essential. This organization will remain united."



E. L. Johnson, M.D.

At the time Dr. Parrott became president of the AMA, the organization was struggling with serious financial problems. Today this is not the case. Today, physicians have the 3-letter problems: PRO, DRG, HMO, RAP, medical malpractice insurance, etc.

We don't need to reinvent the wheel. We need to support our AMA and IMS with our membership and our active participation. The AMA and the IMS are the most democratic bodies of their kind. We should all be proud of organized medicine. We need the IMS and the AMA and they need us! — *Eugene L. Johnson, M.D., LeClaire, Iowa*

"An Educational Experience"

Last spring the Student Medical Society severed its ties with the American Medical Student Association (AMSA) and became an independent organization. We will continue to represent medical students at the University of Iowa in the IMS and AMA. We are known as the Iowa Medical Society-Student Medical Society. I had the good fortune to be elected president.



Brad Lair

When I entered medical school last fall, I knew I wanted to become involved with the IMS and AMA but did not know to what degree. This question was answered last spring when I served as a delegate to the IMS House of Delegates. I was impressed with the activities and policy-making process of the IMS and decided to become more involved.

The IMS offers an educational experience medical school cannot. Involvement in the IMS helps me integrate both the academic and private aspects of medicine. It allows me to better understand the changing environment of health care delivery. The IMS gives me the opportunity to speak out and possibly influence those issues which I, as a future physician, feel are important. — *Brad Lair, Medical Student, Iowa City, Iowa*

"Doctors Have A Voice"

Doctors join the medical society at the county, state, and national levels to keep abreast of political and scientific changes in the medical field. By supporting their organizations, doctors have a voice in policy-making decisions that affect them and their patients. Membership, active participation and financial support of the medical society are important and vital for the success and continuation of the organization. It is a way of saying we believe in our profession and want to keep it strong.



C. O. Adams, M.D.

The Hippocratic Oath we took when we graduated from medical school may be somewhat out of date, but dedicated doctors continue to do the very best they can for their patients. All of their activities are related to the fact they are trying to give their patients the best care possible. They join scientific organizations, attend meetings, listen to scientific lectures and read scientific journals in an attempt to keep up with the latest medical news. The socializing, exchange of ideas, and informal shop talk at society meetings can be enjoyable and offer additional professional benefits.

As a retired physician, I am proud to have been active in the IMS. It has been a very important part of my 50 years of medical practice. I encourage all doctors of medicine to join and become active participants in their professional organizations. — *C. O. Adams, M.D., Mason City, Iowa*

(Please turn to page 486)

WHY I BELONG TO THE IMS

(Continued from page 485)

"Physicians Exchanging Ideas"

I am a member of the Iowa Medical Society because I feel there is a definite need for an organized form through which physicians can exchange ideas to create a better environment for practicing medicine. I believe medicine needs this organized voice so we do not present a fragmented image to the various bodies that try to influence how we practice.



S. D. Richards, D.O.

There are other benefits to membership. The Society sponsors educational programs and services that improve how our practices function and how we treat our patients. The Society provides us with insurance and retirement programs we could not obtain by ourselves.

The practice of medicine becomes more complicated all the time and there are times when I wonder if I am getting my money's worth from the Society. In the end, however, I believe things would be a great deal worse if we did not have the voice of organized medicine. — *Stephen D. Richards, D.O., Algona, Iowa*

"Help In Solving Problems"

When I began practicing medicine in 1950, I joined the county medical society, the Iowa Medical Society and the American Medical Association. In 1965, I discontinued family practice and came to the University of Iowa as a resident in radiology, where I continued my participation in organized medicine.



R. C. Brown, M.D.

As a delegate to the Iowa Medical Society, I find the meetings interesting and most helpful in solving our problems. Anyone can submit a resolution for consideration at the House of Delegates annual meeting. It is best to start through the county society, but all members have an opportunity to express themselves on the problems of the day. Contrary to what many people think, medical societies are very democratic.

Practicing medicine without being a member of the county society, the IMS and the AMA would be difficult. It is through these groups the physician meets other members of the profession and learns about the day-to-day problems of practicing medicine. Physicians learn new methods of diagnosis and treatment. The medical societies also help legislators create better health care legislation for our patients.

Some of these efforts must be working. We have not conquered all the afflictions of mankind, but we have raised the life expectancy from about 40 years to 75 years in my lifetime. You can give credit to the researchers in the ivory tower, however, without the interest, diligence and hard work of the private practitioners — all of us in organized medicine — this would not have been accomplished. — *Robert C. Brown, M.D., Iowa City, Iowa*

"Become A Member, Become Involved"

I first joined the Iowa Medical Society because I felt obligated to do so. I paid my dues with little recognition of the benefits derived.



A. R. Coates, M.D.

However, as a member of the IMS Judicial Council, I have had a chance to observe and appreciate the many benefits provided by the IMS. I am also aware of the countless hours spent by my colleagues in a sincere effort to address the many problems of medicine today.

The day-to-day tasks of the IMS vary widely . . . postgraduate education, tort reform, multiple legislative issues, interaction with the Board of Medical Examiners, contact with county medical societies, and other state societies and last but not least — the American Medical Association.

Until I became involved in IMS activity, I never fully appreciated the hours spent by my colleagues in this important facet of medicine. One needs only to reflect on the words of our forefathers, "either we hang together or we

(Please turn to page 487)

What Does Your Dues Dollar Do?

Who We Are . . .

Established in 1850, the Iowa Medical Society is the state-level professional organization which represents physicians. The IMS is the middle component of the medical federation which begins locally with the county medical society and culminates nationally with the American Medical Association. We can be proud that close to 3,500 Iowa physicians (90%) belong to the IMS. A large percentage of our members belong at all 3 levels.

The purposes of the Society, as stated in the bylaws, are to organize the medical profession in Iowa and "to promote the science and art of medicine and the betterment of public health."

What We Do . . .

Thanks to the many dedicated Iowa physicians who believe in organized medicine, the Iowa Medical Society is a vital and highly-respected organization. The public, the media and other medical professionals look to the IMS and its members for valuable input on health care issues and assistance in solving medicine's complex socioeconomic problems. In Iowa, the voice of organized medicine remains strong.

In keeping with its stated purpose, the IMS spearheads and participates in numerous projects and programs which benefit member physicians and improve the environment in which they practice medicine. The public also benefits — either directly or indirectly — from many projects involving or initiated by the IMS.

Your dues dollars are working for you, your peers and your patients. Let's take a brief look at the Society's activities and accomplishments . . .

Legislative/ Governmental Representation

• IMS Public Affairs Representatives and legislative counsel work in the Iowa General Assembly for passage of legislation which benefits patients and improves the environment in which physicians practice.

• The Society has strong representation with the Governor's office, the Iowa Department of Public Health, the Insurance Department, the Department of Human Services and other governmental agencies.

• The IMS is continuing its comprehensive effort to achieve meaningful reform of Iowa's tort liability laws. Physicians and physician spouses across the state are participating in a grassroots effort to convince legislators of the crying need for tort reform. The IMS has produced posters, sample speeches, background information, news releases, brochures and a variety of other materials designed to educate legislators and the public about the liability crisis. A MALPRACTICE LIABILITY CRISIS UPDATE newsletter is sent to all Iowa physicians and legislators.

• IMS physicians represent the profession on various health care study committees and task forces appointed by the Iowa General Assembly.

• Member physicians represent the IMS nationally in the American Medical Association House of Delegates.

Committees

• The IMS has 45 standing and special committees involving close to 400 member physicians. These committees gather information, make recommendations to IMS leadership and oversee the Society's involvement in various projects. The committees deal with a wide variety of health care issues including medical education, maternal mortality, substance abuse, alternate delivery systems and AIDS.

• Twelve member physicians from across Iowa serve on the IMS Task Force on Medical Liability. The Task Force is closely involved in the Society's ongoing efforts to achieve meaningful tort reform.

• The Iowa Medical Political Action Committee (IMPAC) continues its crucial involvement in local, state and national elections. This committee closely scrutinizes the qualifications and platforms of all candidates for political office.

• IMS physicians currently serve on several study committees created by the Iowa Legislature. These study committees are formulating legislative recommendations on

adolescent health, AIDS and issues relating to financing of health care.

• In response to creation of a Young Physicians' Section in the American Medical Association House of Delegates, the IMS has formed a Committee on Young Physicians. This committee will deal with the special concerns of Iowa physicians age 40 and under.

• The IMS Committee on Assistance Program for Troubled Physicians and the IMS Auxiliary cooperated to establish a Helpline for medical families experiencing problems with alcohol or drug abuse.

Liaison

• The IMS represents Iowa physicians in matters relating to third party payors and Medicare. The Society maintains solid working relationships with Blue Cross/Blue Shield, Principal Financial Group, etc.

• The IMS is active in representing physicians' concerns with other health provider groups such as the Iowa Osteopathic Medical Association, the Iowa Hospital Association, the Iowa Pharmacists Association, etc. Society officers and staff have regular contact with these groups regarding various projects and issues.

• IMS physicians serve on various boards and committees of other organizations such as the Health Policy Corporation of Iowa and the Iowa Foundation for Medical Care (IFMC), Iowa's peer review organization. The IMS is represented on the IFMC's Provider Advisory Committee.

• The IMS Committee on Medical Service is implementing a plan to address concerns of Iowa physicians regarding the IFMC and the peer review process.

• The IMS has excellent liaison with the University of Iowa College of Medicine. Every summer, a University of Iowa medical student serves a 6-week internship at the IMS.

Educational Activities

• The IMS is involved in various activities related to continuing medical education. Every April, a Scientific Session is held in conjunction with the annual IMS House of Delegates meeting. The session is devoted to the latest medical techniques and technologies. Socioeconomic issues and other issues of interest to physicians are also explored.

• Every year, the IMS sponsors a number of seminars, programs and lectures designed to help member physicians improve management of their practices or learn about the issues affecting health care delivery.

• Through Iowa Physicians Mutual Insurance Trust (IPMIT), the Society's liability insurer, a Risk Management Seminar series is offered each fall. Open to all member physicians, this excellent series provides the latest information on how to avoid malpractice suits.

In The Public Interest / Public Relations

• The IMS coordinates television, radio and newspaper interviews with member physicians on topics of interest to patients. IMS physicians play a key role in satisfying the public's appetite for health care information.

• The IMS has produced and made available to member physicians a number of patient information publications. These have included brochures on wellness and family health records and med-cards for senior citizens.

• The newly-appointed IMS Committee on AIDS will play a lead role in establishing guidelines on AIDS issues and will keep member physicians apprised of AIDS developments in Iowa.

• The IMS and the Iowa Department of Human Services cooperated in production of "Children in Jeopardy", a brochure containing guidelines for detection, treatment and reporting of child abuse. The brochure has been distributed to physicians, educators, social workers and other groups across Iowa.

• Under the direction of the Committee on Emergency Medical Services, the IMS produced and distributed a Trauma Patient Protocol to member physicians. The protocol helps physicians understand the role alcohol and drugs play in some traumatic injuries.

• Through the IMS Committee on Sports Medicine, IMS members are recruited to serve as team physicians for various high school athletic events.

Publications

• IOWA MEDICINE is the award-winning state medical journal mailed monthly to IMS members. The magazine explores current medical socioeconomic issues of interest and publishes scientific articles authored by Iowa physicians. Member physicians may place classified advertisements free of charge in the magazine.

• The IMS UPDATE, the Society's monthly newsletter, gives member physicians the latest information on IMS activities and statewide health care issues.

• The IMS STATEHOUSE UPDATE and STATEHOUSE UPDATE MINI-MESSAGES, published periodically during sessions of the Iowa Legislature, follow the progress of medically-related legislation.

• An IMS Member Directory is published annually and mailed to member physicians, hospitals, libraries, chambers of commerce and others.

• The IMS provides a number of informational brochures and flyers to its members. These publications cover everything from how to avoid malpractice suits to a recent legal opinion on Iowa's new informed consent law.

Looking Ahead

• Expansion of PRO authority.

• Increasing demands of third party payors.

• Cost and availability of liability insurance.

• Changes in Medicare reimbursement.

• Continued access to quality health care in rural Iowa.

• Unprecedented ethical issues created by advances in treatment and technology.

• Threats to the public image of physicians.

• Expansion of practice privileges, mandatory hospital privileges and mandated insurance coverage for limited health care practitioners.

These are just a few of the many challenges facing Iowa physicians now and in the near future. IMS members are preparing to directly address these issues through a variety of programs and initiatives. The IMS will continue to do everything possible to improve the environment in which Iowa physicians practice and to preserve the high quality health care received by Iowans. Organized medicine is working for you. Please join us.

WHY I BELONG TO THE IMS

(Continued from page 486)

hang separately," to realize we not only have an opportunity but a genuine obligation to belong to the IMS.

I know I may be criticized for saying, "Some doctors are doing very little in support of organized medicine." But, in my opinion, doctors who do not belong to the IMS are "piggy backing" on those who do.

I make that statement not as criticism but as a challenge to Iowa physicians to join and become involved in the IMS. Though we some times feel, we are losing ground in our efforts to preserve quality medical care, were it not for the IMS, we would be in a less desirable position.

I, for one, appreciate the time and effort spent unselfishly by my colleagues and the incredible number of hours, enthusiasm and professionalism shown by the staff of the IMS. Become a member, become involved. — *Albert R. Coates, M.D., IMS Judicial Councilor, District 4, Cedar Rapids, Iowa.*

"A Caring Network"

What does the IMS Auxiliary offer physicians' spouses?



Joan LeValley

The Auxiliary is dedicated to promoting the goals of the medical profession, meeting community health needs and providing support for the medical family. The Auxiliary promotes programs in the areas of child abuse, substance abuse, eating disorders, drunk driving, child auto restraints, organ donation, teen suicide and others. We are a driving force to ensure good health and quality health care for everyone.

Auxilians have access to information about legislation that will affect health care and the practice of medicine. We join in partnership with the IMS to become aware, educated and involved in health legislation. We provide funding for medical schools and medical student loans. We issue a monthly newsletter that tells us what is happening across the state.

A primary goal is to provide fellowship and friendship to all auxiliary members. We are a support system for medical families. The IMS Auxiliary has a support group of physician spouses who have experienced alcohol and drug dependency in their families.

Programs such as these prove the auxiliary is no longer just a tea and crumpets organization. We have a responsibility to work for the common good, to make our community the healthiest place in the world. We have moved into the role of leadership.

When you join the medical auxiliary, you become part of the caring and sharing network of the medical spouses in Iowa. — *Joan LeValley, President, IMS Auxiliary, Fort Dodge, Iowa*

"Participation, Finances, Leadership"

This month's IOWA MEDICINE is devoted to membership. Several physicians were asked why they belong to the IMS and a number of reasons were given. All these reasons are important and must be addressed if a strong, vibrant medical organization is to represent Iowa physicians.



Eldon E. Huston

But what does membership mean for the organization? Benefits for the organization fall under 3 headings: PARTICIPATION, LEADERSHIP and FINANCES.

Participation: Almost 90% of eligible Iowa physicians belong to the Iowa Medical Society. In most voluntary organizations, only 10-15% of the members actively serve on committees and councils at any point. From year to year, 350 physicians serve on IMS boards, councils, committees, in the House of Delegates, as legislative contact physicians or in other capacities. This participation includes both genders, all age levels, specialties and geographic locations plus private practice and employed physicians. Every physician is encouraged to be available for service to their organization.

Leadership: In these difficult times, energetic, thoughtful, informed, intelligent and aggressive leadership is essential. Delivery and financing of medical care are major public policy issues and will remain so in the 1990s. IMS

(Please turn to page 488)

WHY I BELONG TO THE IMS

(Continued from page 487)

officers and committee members devote the time it takes to become informed on a myriad of issues. This requires attendance at a number of meetings, both in Iowa and nationally. Only by understanding issues from a national perspective can Iowa leadership address the same issues at the state and local levels.

The IMS needs and is fortunate to have members who give of themselves to represent all Iowa physicians. They must often place the interests of the profession above their personal feelings or those of their specialty. Physicians owe a debt of thanks to their colleagues who are willing to assume this difficult mantle of leadership.

Finances: To succeed, any business, profession or organization requires a financial base. The fact that approximately 90% of Iowa physicians voluntarily belong to the IMS spreads organization costs. This makes the dues level affordable for almost all physicians. If the Society is to aggressively represent physicians and be involved in all aspects of delivery and financing of medical care, sufficient funds must be made available for programs and staff to provide these services.

The IMS is presently in a strong financial position with reserves set aside for contingencies. The IMS has a cadre of highly educated, competent and motivated staff members. Without a strong financial base, the IMS would have been unable to establish the Iowa Physicians Mutual Insurance Trust (IPMIT) and undertake other key projects when immediate need arose.

There are many other factors that can be cited, but these 3 — PARTICIPATION, LEADERSHIP and FINANCES — form a continuing circle that enables the IMS to serve its membership and the membership to serve the IMS. — *Eldon E. Huston, Executive Vice President, Iowa Medical Society, West Des Moines, Iowa*

Recent Books

Subak-Sharpe, Genell J., 1987, *Overcoming Breast Cancer*, Doubleday & Co. Inc., New York, New York, $16.95. The breast cancer patient will find this small (181 pages) book informative in understanding their plight. The concise discussions include the approach by physicians at Evanston Hospital in Northwestern University's MacGaw Medical Center. A directory of resources and references, as well as a complete glossary, adds to the value of this book.

Swank, Roy L. and Dugan, Barbara B., 1987, *The Multiple Sclerosis Diet Book*, Doubleday & Co. Inc., New York, New York, $19.95. This discussion of the low-fat diet including some 350 recipes comes from the Department of Neurology, Oregon Health Sciences University. It provides an approach to the vexing management of multiple sclerosis.

Chicago Guide to Preparing Electronic Manuscripts, 1987, prepared by the Staff of the University of Chicago Press, University of Chicago Press, Chicago, Illinois, Paperback, $9.95; Clothbound $25.00. The Chicago Manual of Style has proved its worth since 1982. Now, this guide is available to authors and publishers who use computers for preparing manuscripts and converting them to type. A comprehensive list of generic codes are included as the appendix.

Fish, Raymond M. and Ehrhardt, Melvin E., 1987, *Medical Depositions: Avoiding the Traps*, Medical Economics Books, Oradell, New Jersey. Paperback $24.95. The deposition process is basically foreign to medical practitioners. This is an excellent book to introduce the doctor to an ever-increasing facet of life. Tricky questions to counter during the deposition are described. This book is recommended reading.



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JAMES E. DAVIS, M.D.

Questions and Answers



A Case For Unified Membership

Medicine is facing challenges on a number of fronts. The AMA believes the best way to achieve a strong program to meet these challenges is through support of organized medicine at the local, state and national levels. Iowa physicians have already taken the first step by implementing unified membership between the county medical societies and the IMS. Six states are now unified with the AMA, compared with just two in 1984. Here, James E. Davis, M.D., president-elect of the AMA, discusses what unification would mean for Iowa physicians.

How would IMS members benefit from unification?

All IMS members would receive the benefits of AMA membership, including *JAMA, American Medical News*, insurance and retirement plans. IMS members would receive a 10% reduction in AMA dues (except students and residents).

How would the Society benefit?

The IMS would be entitled to two additional delegates in the AMA House of Delegates. The IMS would become a member of the Unified Societies Advisory Committee which meets regularly with the Executive Committee of the AMA Board of Trustees and the Association's Executive Vice President to share the concerns of unified societies. The IMS would receive a commission of up to 3% for collection of AMA dues.

What if we disagree with some AMA policies, programs or proposals?

AMA policies are made by the AMA House, composed of delegates from the IMS and others. If you agree with IMS policies, you are likely to agree with most AMA stands. Since IMS would send two more delegates to the House, its influence in the House would increase.

Why can't the AMA always prevent enactment of federal legislation that endangers professional freedom?

No organization can hope to be 100% successful in the political arena, but the AMA has been more successful than most. Also, the AMA must do more than just oppose inappropriate legislation. It must advance medicine's solutions to problems. In efforts such as the AMA action plan to ameliorate the professional liability crisis and the AMA's development of the Health Policy Agenda, our association is taking a pro-active stance to propose, rather than oppose, solutions to pressing national problems.

What is the value of the AMA to me?

For most physicians, dues are tax-deductible, which substantially reduces the real

cost of AMA membership. You would receive a 10% rebate if the IMS unified. Can we afford not to have the strongest possible national association? Paying AMA dues is the price of professional freedom.

Doesn't unified membership deny a physician's freedom of choice?

The most effective way for medicine to become strong at the national level is through unification. The real freedom at stake is patients' freedom to choose their physician and our freedom to practice according to our best professional judgment. The discipline of unification will help us preserve these freedoms.

Won't the IMS lose members if we unify?

Not necessarily. Each IMS member must answer that question. The Mississippi State Medical Association actually increased membership in 1986, the first year of unification with the AMA. Membership in Illinois and Oklahoma, which have been unified since 1950, is better than most non-unified states.

Most IMS members are already AMA members. The 10% reduction of AMA dues to members of unified societies would ease the financial burden. The IMS would receive all feasible support from the AMA in communicating the importance of continued membership support.

CORRECTION

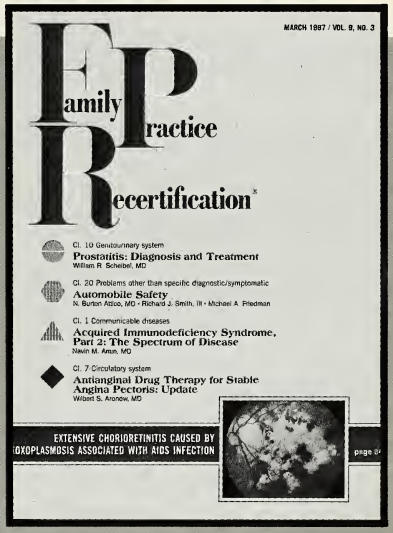
In the Question and Answer feature of the September issue of IOWA MEDICINE, the author's name was misspelled. The correct spelling of the name of the Assistant Executive Secretary of the Iowa High School Athletic Association is Dave Harty. We regret the typographical error.

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PEOPLES DRUG

Kwashiorkor in Iowa: Catastrophic "Benign" Gastrocolic Fistula

JAMES A. PETERSON, JR., M.D., F.A.C.S.
Clinton, Iowa

A gastrocolic fistula arising from a virginal, nonmalignant gastric ulcer is rare. The author presents an unusually catastrophic case and difficulties encountered in its management.

A 42-YEAR-OLD WOMAN, 4'11" tall, normal weight 95 lbs., was admitted on September 24, 1985 with a 2-week history of diarrhea and occasional nonspecific mild abdominal pain. There was no history of nausea or vomiting, recent viral illness or medication use or abuse. During the preceding 2 months her weight dropped to 85 pounds with another 16 pounds lost following onset of the diarrhea. Other than smoking, her medical history was unremarkable. Her family history included peptic ulcer disease plus recent deaths and major illnesses from various causes.

Examination revealed a gaunt 69-pound woman with marked dehydration. The abdomen presented with mild diffuse tenderness, normoactive bowel sounds and no palpable masses. Pelvic and rectal exams were noncontributory.

Initial laboratory values included hemoglobin 11.9 gm%, a white cell count of 9,100 and a carcinoembryonic antigen (CEA) level of 21, (the normal for smokers is under 5). Stool specimens were clear of ova and parasites; no enteric pathogens were isolated. Other pertinent results are shown in Table 1.

Parenteral fluid resuscitation was successful and anticholinergic medication reduced the diarrhea stools to 4 per day. The diarrhea did not cease until after parenteral hyperalimentation was begun.

A barium enema on September 26 showed a gastrocolic fistula involving the midtransverse colon with an apparent complete obstruction proximal to the fistula.

We saw the patient in consultation on September 26. Her appearance was that of a famine victim. The abdomen was deceptively benign, a slight fullness not fully appreciated until a physiologic diuresis revealed there had been considerable intraperitoneal fluid present. A surgically acute abdomen was not present. We recommended parenteral hyperalimentation to restore nutritional integrity before operation. Parenteral cimetidine was begun.

Dr. Peterson is a general surgeon associated with Medical Associates Clinic in Clinton.

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR THE MONTH OF OCTOBER 1987

TABLE 1

COMPARATIVE PERTINENT LABORATORY VALUES

	Normal	*9/25/85*[a]	*10/7/85*[b]
Albumin	3.4-5.0 gm%	2.3	5.0
Total protein	6.0-8.0 gm%	4.4	6.4
Cholesterol	150-210 mg%	72	116
Glucose	65-106 mg%	110 (D5)	114 (D25)
Sodium	135-150 meq/L	137	149
Potassium	3.5-5.0 meq/L	4.2	3.6
Calcium	8.6-10.6 mg%	7.4	9.9
Phosphate	2.0-4.0 mg%	3.2	3.2
Uric Acid	3.2-7.0 mg%	1.6	0.9
BUN	9.6-19.6 mg%	11	18
Creatinine	0.7-1.1 mg%	0.5	0.6
Bilirubin (total)	0-1.0 mg%	0.3	0.5
Alk. phosphatase	86-263 IU/L	380	93
LDH	83-173 IU/L	158	160
SGOT	6-32 IU/L	41	78

a — values on admission; 5% glucose infusions

b — values after 10 days of parenteral hyperalimentation; 25% glucose

Other laboratory tests were done, including coagulation studies. All were normal.

On September 28 a right subclavian catheter was placed under fluoroscopic control, and she was started on a ¼-strength hyperalimentation formula. Normal serial blood chemistries permitted rapid advancement to full-strength solutions. Trace element and vitamin supplements were included; 50cc of 25% albumin were added to each liter of solution. A starting infusion rate of 90cc/hour (2376 calories/day) provided as much nutrition as possible to this hypoalbuminemic patient without volume overload. On October 1, the rate was decreased to 70cc/hour. She received 250cc of a commercial fat emulsion weekly. No evidence of related deficiencies was seen. In addition, a unit of packed red cells was given on 2 occasions for hemoglobin values of 9.1 and 9.7 gm% respectively. As indicated in Table 1, the patient showed no metabolic intolerance to the hyperalimentation. No hyperglycemia or glucosuria ever developed and insulin was never required.

The patient experienced a complicated preoperative course, as partly diagrammed in Figures 1, 2, and 3.

Figure 1 shows an additional 10-pound weight loss during a profound physiologic diuresis, beginning as the serum albumin level rose. 4400cc of dilute urine were passed on September 29 and 2300cc on September 30. Internal medicine consultation identified no renal or endocrine insufficiency or electrolyte imbalance. Her true weight relative to body mass was 59½ pounds.

Figure 2 diagrams 3 fever spikes before operation. The first occurred on October 9 shortly after lipid and blood infusions and was thought to be a febrile reaction. However, antihistamine had no effect on the fever. We obtained a history of a break in the hyperalimentation connecting tubing 2 days earlier. On October 11 the catheter was removed and a fresh one inserted through the left subclavian vein, again under fluoroscopic control. Blood cultures drawn on October 9 were reported out on October 11 as positive for *Staphylococcus aureus*, coagulase (+). Methicillin was begun empirically and was continued for 3 days. The fever subsided.

The second fever spike occurred the day after the next lipid infusion and during the infusion of the second unit of packed red cells. There were no signs of sepsis. There had been no break in catheter care technique. Thus, no blood cultures were drawn. One dose of rectal acetaminophen quickly eliminated the fever. Hematology/oncology consultation suggested the presence of leukoagglutinins and recommended use of preinfusion antihistamine and washed red cells.

The third fever spike occurred within a few hours of another lipid infusion. However, due to ulcerated vesicles from herpes simplex, blood cultures were drawn and were positive for *S. aureus*, coagulase (+). The hyperalimentation catheter was removed.

On October 20, 2 days after the second fever spike, a nonspecific, diffuse maculopapular rash appeared on the face and lower extremities. The patient stated these types of lesions often appeared seasonally. A frank glossitis developed which did not respond to oral mycostatin. By October 29, the papular lesions became ulcerated vesicles with involvement of the eyelids, nares, mouth and ears. Hematology/oncology consultation confirmed the presence of disseminated herpes simplex. Parenteral antiviral therapy was instituted.

Bullous lesions appeared along the fin-

(Please turn to page 495)

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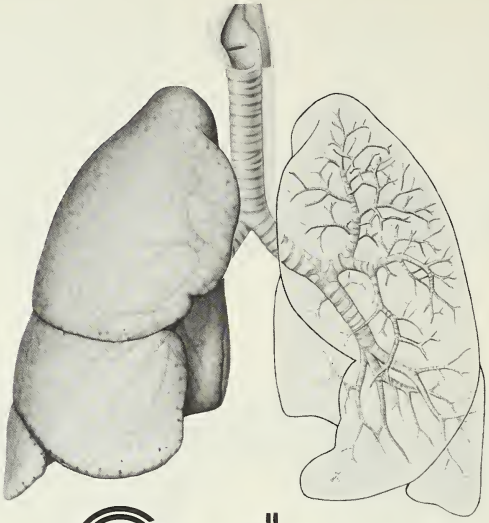
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CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:
• Discontinue Ceclor in the event of allergic reactions to it.
• Prolonged use may result in overgrowth of nonsusceptible organisms.
• Positive direct Coombs' tests have been reported during treatment with cephalosporins.
• Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
• Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
• Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)
Therapy-related adverse reactions are uncommon. Those reported include:
• Gastrointestinal (mostly diarrhea): 2.5%.
• Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
• Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever): 1.5%; usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.
• Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
• As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
• Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
• Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%; and, rarely, thrombocytopenia.

Abnormalities in laboratory results of uncertain etiology
• Slight elevations in hepatic enzymes.
• Transient fluctuations in leukocyte count (especially in infants and children).
• Abnormal urinalysis; elevations in BUN or serum creatinine.
• Positive direct Coombs' test.
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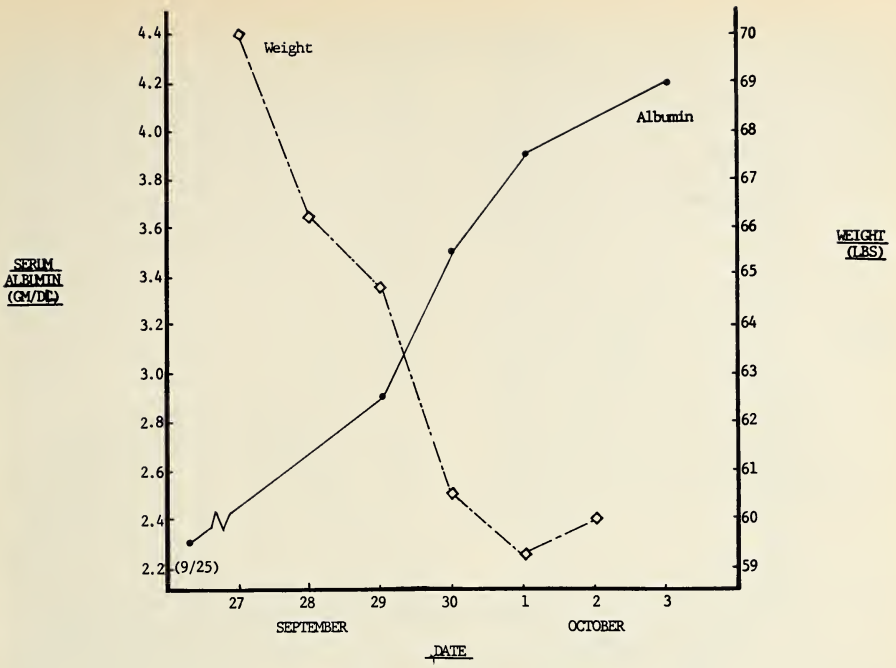


Figure 1. Phase of Physiologic Diuresis

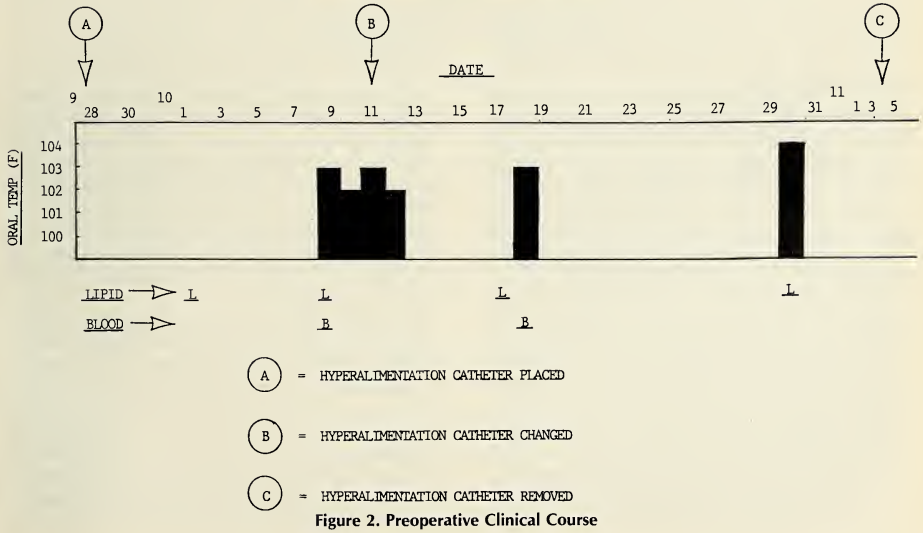


Figure 2. Preoperative Clinical Course



Figure 3. Weight — Summer/Fall 1985

gernails and on the palms and soles. Fluid cultures were negative but the presence of the lesions in conjunction with the third fever spike and the subsequent positive blood cultures strongly suggested a relationship with the *S. aureus* septicemia. Our consultant prescribed a 3-week course of cefoperazone that would ultimately cover the entire perioperative period. Her operation, originally scheduled for October 30, was postponed until the herpetic lesions were almost healed. No attempt was made to resume full-strength parenteral nutrition. The condition of the nares and mouth precluded any nasal or peroral feeding tubes. We did not wish to submit her to early laparotomy solely for the placement of an enteral feeding tube. A 5% glucose/4.25% amino acid solution was infused peripherally.

Esophagogastroduodenoscopy was performed on October 28 before it became evident that the operation would have to be postponed. A large, well-defined antral ulcer and patent fistula were seen. Biopsies showed chronic gastritis and no granulomas. Endoscopy was not performed until we felt the patient was ready for operation. Spontaneous perforation of a gastrocolic fistula has been reported, and we believed instrumentation of the stomach plus air insufflation could produce a perforation.[1]

On November 11, the fistula was resected en-bloc by antrectomy and midtransverse colectomy. With the colon prep excellent, reapproximation was accomplished by a standard 2-layer anastomosis. No signs of inflammatory bowel disease were present. We concluded a definitive operative for a perforated peptic ulcer was indicated. Consequently, bilateral truncal vagotomy was performed. Continuity was reestablished by an antecolic Roux-en-Y

gastrojejunostomy. A Marwedel feeding tube jejunostomy was created using a #8 French feeding tube. Multiple calculi were palpable within a white, thickened gallbladder which was also removed. The operation concluded with an elective appendectomy.

Following administration of parenteral antihistamine, 2 units of washed packed red cells were infused intraoperatively without incident. The ambient air temperature in the operating room was kept in the mid-70's(F), the patient placed on a warm thermal blanket and the infused blood passed through a warmer. Throughout the procedure, her rectal temperature was 99 degrees F. Gentamicin 30 mg. was given intravenously twice before operation and continued for 3 days after.

Postoperatively, the patient experienced no cardiopulmonary complications or detectable phlebitis. On the second day, an augmented elemental diet was started in dilute form through the jejunostomy and then in standard concentration up to 60cc/hour. Attempts to increase the rate produced severe abdominal cramping. Metoclopramide was given empirically to improve gastric emptying following vagotomy. A gastrografin UGI series on November 19 demonstrated satisfactory gastric emptying. Liquids, then solids, separated by 1-2 hours, were started. She became self-sufficient and the jejunostomy feedings were discontinued. She was discharged on Thanksgiving Day nutritionally self-sustaining, progressively mixing solids and liquids with no dumping or hypoglycemia seen. The feeding tube was removed without incident. By February 1986, her weight was 95 pounds. Other than some roughage that produced indigestion or diarrhea, she experienced no significant eating problems and colon function was normal. To date there has been no lactose intolerance and serum B-12 levels remain normal. Physical therapy began within a week of operation and continued through January 1986, when she was fully recovered. The only residual side effect from her ordeal was nearly total alopecia, presumably from the antiviral therapy; but almost full restoration has occurred.

Discussion

Gastrocolic fistula is the final common pathway for a variety of diseases.[2] Originally primary carcinoma was the leading cause but was supplanted by peptic ulcer disease in the form of operative failures. The virginal, nonmalignant ulcer is still a rare cause today.[2-4]

The first 2 series were reported by Bez in 1897 and Chavannaz in 1917.[2] Starting with Firth's case report in 1920, to our knowledge there have been only 62 patients described in the English literature.[2] The history and physical findings, pathophysiology, diagnostic workup and treatment options have been well described.[2-4, 12]

The latest era of "modern" surgery, covering 2 decades, has been characterized by improved patient preparation and availability of nutritional support. Appreciation of the role of positive nitrogen balance in reducing morbidity and mortality has placed emphasis upon assessing a patient's current and future needs. While conceptually simple, translating the idea into accurate measureable parameters has been difficult. Anthropometric norms such as the midarm muscle circumference (MAMC) may be useful in some patients but are often quite subjective.[5]

Weight loss is a frequent feature of this syndrome.[2] Gradual weight loss is often physiologically compensated and patients seem to tolerate the fistula remarkably well.[4, 5] The greatest weight loss reported — 60 pounds — occurred over 6 months; the second greatest loss was 40 pounds over 3 months.[6, 7] Weight losses seem to fall into 3 categories; less than 10 pounds, 10-20 pounds and over 20 pounds. There are 3 general classes of malnutrition identified; little or none, moderate, and severe. However, body weight gives little insight into the patient's overall condition; severity of weight loss alone does not predictably reflect the severity of the malnutrition.[5] For example, the first case described in the Mayo Clinic report was a 35-year-old man who presented with a 20-pound weight loss over 3 weeks. This deficit, however, was insignificant because his normal weight was 316 pounds.[2] Determining what proportion of the usual weight has been lost is more useful. In general, a loss greater than 20% can be considered an indicator of malnutrition and a risk factor for operation.[5]

In counterpoint, acute illness may produce a marked compromise in the patient's condition; but minimal weight change may be due to an expansion of extracellular water. Thus, some other index is required. The most

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TABLE 2

CORRELATION OF SERUM ALBUMIN WITH EXTENT OF DEPLETION

Serum Albumin	*Extent of Depletion*
3.5 gm%	none
3.0-3.5 gm%	mild
2.4-2.9 gm%	moderate
2.4 gm%	severe

TABLE 3

CLASSES OF NON-MALIGNANT ULCERS

I) Peptic ulcer (vagotomy)
II) Nonpeptic ulcer
 A) Simple gastric
 B) Medication-induced
 1) Aspirin alone
 2) Steroids alone
 3) Aspirin and steroids
 4) Nonsteroid/nonaspirin anti-inflammatory agents (e.g. ibuprofen)

readily available is the level of serum albumin, shown in Table 2.[5]

Applying these criteria, it is clear our patient — with an acute *31%* drop in weight and a presenting serum albumin of 2.3 gm% — exhibited a combination of severe caloric and protein depletion. The development of ascites secondary to hypoalbuminemia identified her condition as early kwashiorkor.

Of the 7 deaths reported in the literature, 4 were related to cachexia and fluid and electrolyte depletion and illustrate the importance of correcting these deficiencies preoperatively.[2] These cases occurred before the general acceptance and availability of parenteral hyperalimentation (TPN) which ironically is not mentioned in the 1976 review by Akwari. Of the reports submitted since then, 4 mention the initial serum albumin levels; 3 mention TPN and one cited an oral elemental diet.[4, 6-9] Fortunately, most patients require little more preparation than correction of dehydration and anemia and a standard colon cleansing.

Table 3 shows a possible classification of patients with virginal, non-malignant gastrocolic fistulae. Almost one-third have used aspirin, steroids or other anti-inflammatory agents, alone or in combination, self-administered or by prescription.[2, 3, 6, 9, 11-13] Conversely, up to two-thirds of these patients may have peptic ulcers. Correctly identifying the type of ulcer responsible for the fistula is essential for choosing the proper operation. If a patient's condition permits, gastric resection is an integral part of the operation. In those cases involving a peptic ulcer, a truncal vagotomy is also performed. We favor the Roux-en-Y reconstruction to minimize the incidence of bile reflux gastritis postoperatively.

We believe our patient presented with a perforated peptic ulcer as the basis for her gastrocolic fistula. Smoking, stress, family history, absence of medications and the endoscopic findings all supported that diagnosis. In all probability, the ulcer became clinically significant earlier in the year and was responsible for the initial weight loss 2 months before the diarrhea. Others have emphasized the absence of malignancy in these patients; we were more concerned about excluding Crohn's disease from the differential diagnosis. Although our patient's ulcer fell into the "benign" category, the devastating effects of the resulting gastrocolic fistula were not.

There are no simple criteria to determine when our patient was optimally ready for operation. Serum albumin, a malnutrition detector because of its early depletion, is the last element to be restored when TPN alone is used.[10] Supplemental albumin added to the TPN solutions quickly and effectively restored proper oncotic pressure; but a normal albumin level did not mean nutritional restoration had begun.

Since our patient presented with the median weight of an 8-year-old girl, we believed her only chance for survival was regaining as much body mass as possible before operation. After October 11, we observed a plateauing of her weight originally attributed to the interruption of the TPN. Since an infusion rate of 70cc/hour had achieved excellent results, we saw no reason to increase the rate. Once various metabolic pathways are saturated, excessive rates of infusion will not produce greater protein synthesis.[10] Even with the normal serum chemistries, the appearance of the disseminated herpes simplex clearly demonstrated continued immunosuppression.

The possibility of catheter sepsis must be considered whenever fever appears. One ep-

isode of proven contamination occurred on October 7 with the break in the connecting tubing. The herpes cutaneous ulcers were probably the portal of entry for the organisms detected by the blood cultures of October 30. The simultaneous presence of fever and bullae on the fingers, soles and palms strongly suggest a true *S. aureus* septicemia was present. Did the positive cultures of October 9 represent a septicemia or only a bacteremia or contamination? Was it coincidental all 3 fever spikes came soon after the patient received lipids or the first 2 occurred with the only blood transfusions given preoperatively? If a true *S. aureus* septicemia had been present since October 9, why was the patient not continuously febrile, especially in the absence of any antibiotic coverage? Conversely, was the failure to gain weight after October 11 due to a constant sepsis leading to an increased metabolic rate? These are a few of the questions generated by this case. We hope these issues and other features of this case will serve as focal points for teaching and discussion.

Our patient may be the most seriously ill patient in this series to have recovered.

References

References noted in this article are available from the author or the editors of IOWA MEDICINE.

BREAST CANCER: CURRENT CONCEPTS AND CONTROVERSIES

1987 HOWARD B. HUNT CANCER SEMINAR

SATURDAY — DECEMBER 5, 1987

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Endoscopic Sphincterotomy

JEFFREY D. STAHL, M.D.
Des Moines, Iowa

Endoscopic sphincterotomy is a safe and effective procedure commonly used for removal of retained or common duct stones. The author discusses how endoscopic sphincterotomy can be a therapeutic option for patients who have retained or recurrent common duct stones.

THE INTRODUCTION OF FLEXIBLE fiberoptic endoscopes almost 30 years ago opened new areas for diagnosis of gastrointestinal disease. The flexibility made possible by fiberoptic technology offered diagnostic procedures that were easy to perform and not uncomfortable for the patient. With new diagnostic capabilities, physicians soon saw therapeutic opportunities. We now take for granted the removal of colonic polyps endoscopically and are seeing introduction into clinical practice of bipolar cautery units and endoscopic lasers for treatment of acute gastrointestinal bleeding, esophageal cancers and angiodysplasia of the colon. Another theraputic advance offered through flexible fiberoptic endoscopy is endoscopic sphincterotomy for removal of common bile duct stones.

Sphincterotomy is the therapeutic extension of ERCP (endoscopic retrograde cholangiopancreatography). Using a side-viewing duodenoscope, the endoscopist is able to locate the papilla of Vater in the second portion of the duodenum and cannulate it with a small plastic cannula inserted through the instrument. Radiographic dye is then injected through the cannula, allowing visualization of both the pancreatic and biliary trees. Separate positioning of the cannula for each duct is necessary. Although requiring different skills than those needed for upper gastrointestinal endoscopy, the manipulations for visualizing the desired duct can be accomplished successfully in 85-90% of cases by the experienced endoscopist (Figure 1).

In 1973 the first attempts at treating the pathology identified at ERCP were made simultaneously by Kawai in Japan and Demling in Germany. A cannula was modified to contain a wire that could be tensed across the sphincter (Figure 2). Current delivered through the wire could then be used to cut through the sphincter tissue, opening the distal bile duct. Various baskets and balloons are used to extract the calculi from the duct through the enlarged opening (Figure 3). One brief procedure gives us an alternative to surgical sphincterotomy which necessitates a duodenostomy and a lengthy post-operative hospital stay.

Subsequent experience with endoscopic sphincterotomy has revolutionized treatment of common duct stones (retained and recurrent) and gives a therapeutic option for those patients with obstructing common duct stones and intact gallbladders who are poor surgical risks. Endoscopic sphincterotomy has been used for treatment of sphincter of Oddi stenosis and for palliative relief of obstruction from ampullary tumors. Placement of stents

Dr. Stahl is medical director of the endoscopy department of Mercy Hospital Medical Center, Des Moines.

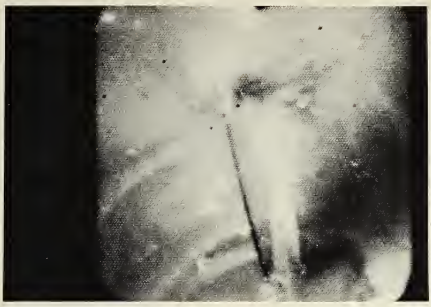


Figure 1. Sphincterotome positioned across sphincter of Oddi, with current applied.

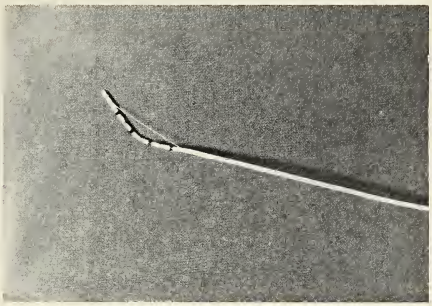


Figure 2. Endoscopic sphincterotome, Olympus model.

across a distal duct obstruction can also be obtained without cutting the sphincter tissue.

Methods

From January, 1982, through December, 1985, 46 patients were selected for ERCP and sphincterotomy. Selection criteria included demonstration of common duct stones on previous studies (ERCP, percutaneous cholangiogram, ultrasound), typical biliary symptoms along with a history of previous colecystectomy for stone disease, abnormal biliary tract and liver enzymes (GGTP, alkaline phosphatase, SGOT, SGPT) and findings of extrahepatic biliary tract obstruction. Two patients had sphincterotomy for relief of diagnosed sphincter of Oddi stenosis. Four patients who were candidates for the procedure did not have it done because of problems positioning the sphincterotome.

Procedures were done in the hospital x-ray unit under sedation with Diazepam and Meperidine intravenously. Glucagon intravenously was used to suppress duodenal motility. JFIT or JFB2 Olympus duodenoscopes were used in all patients, along with Olympus sphincterotomes (Figure 2). Time range for completing the procedure was 20 to 60 minutes. Age range for the patient population was from 25 to 90 years, with the median age 72 years.

Results and Discussion

Sphincterotomy was successful in 42 of 46 patients (91%) on whom it was contemplated

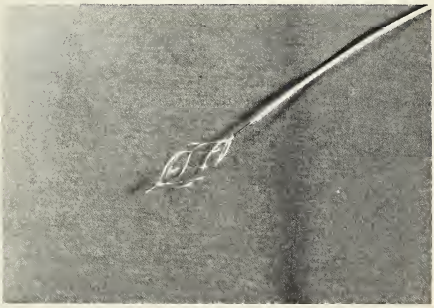


Figure 3. Endoscopic basket used for stone retrieval after sphincterotomy.

or attempted. The procedure was not done on some patients because the expected pathology of the common duct was not actually found on ERCP examination. The procedure could not be performed in 4 patients because the sphincterotome could not be placed selectively into the common duct. This may have been due to scarring of the duodenum, duodenal diverticula next to the papilla or eccentric placement of the papilla in the duodenum making adequate approach with the endoscope impossible. If the sphincterotome can only be placed selectively in the pancreatic duct, sphincterotomy cannot be done because cutting the pancreatic duct will result in post-procedure pancreatitis.

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From the literature, possible complications of the procedure include bleeding, perforation, cholangitis and pancreatitis. The significant incidence of such complications is in the 5-8% range. Bleeding may be a problem requiring surgery. It can occur regardless of the experience of the endoscopist because in approximately 5% of patients, a small artery courses through the superior aspect of the papilla. Some bleeding is common, although not necessary, and usually stops spontaneously. In our series, 2 patients required transfusion of blood post-procedure; no patients required surgery for control of bleeding.

"All stones were removed in 88% of those patients in whom the sphincterotomy cut could be made. Stones remained in 12%. In these cases, the stones were too large to be removed after the cut was made and the patients moved on to surgical exploration of the common duct."

Perforation may occur with too long a cut and is a more common complication in patients with small papillae. None of our patients suffered this complication.

Cholangitis may occur because of manipulation of the common bile duct, particularly with breaks in the mucosal lining resulting from the sphincterotomy cut. This problem is addressed with prompt institution of intravenous cephalosporin antibiotics known to give high bile levels. We institute such medications just after the procedure in all patients, with the first dose given before the patient leaves the x-ray unit. None of our patients developed cholangitis.

Pancreatitis is a common complication in common duct stone disease and sphincterotomy as well as ERCP without sphincterotomy. If a stone is impacted at the sphincter, acute pancreatitis may occur. Prompt removal of the stone (on an emergency basis) can cut short this process. Once a sphincterotomy cut is made, if the stone or stones cannot be removed with the basket or balloon, pancreatitis may result when the retained stones pass out of the duct through the newly enlarged opening.

Transient elevation of serum amylase may occur if the stone transiently obstructs the opening of the pancreatic duct. This occurred in 2 of our patients (6%) but was a self-limited phenomenon that required no additional treatment. It may have prolonged the hospital stay by one or 2 days. This is seen in a similar percentage of post ERCP patients without sphincterotomy.

Once the sphincter opening is enlarged by means of the sphincterotomy cut, removal of the stones in the common duct may be done in several ways. An endoscopic basket (Figure 3) may be passed into the duct and the stones snared and withdrawn, or an endoscopic balloon may be passed into the duct and inflated above the stones. Pulling the balloon down and out of the duct causes the stones to be pulled out ahead of it. If a stone cannot be removed by either of these methods, it can be left. Most will pass spontaneously out of the newly enlarged opening. This can occur with stones up to 1.5 cm.

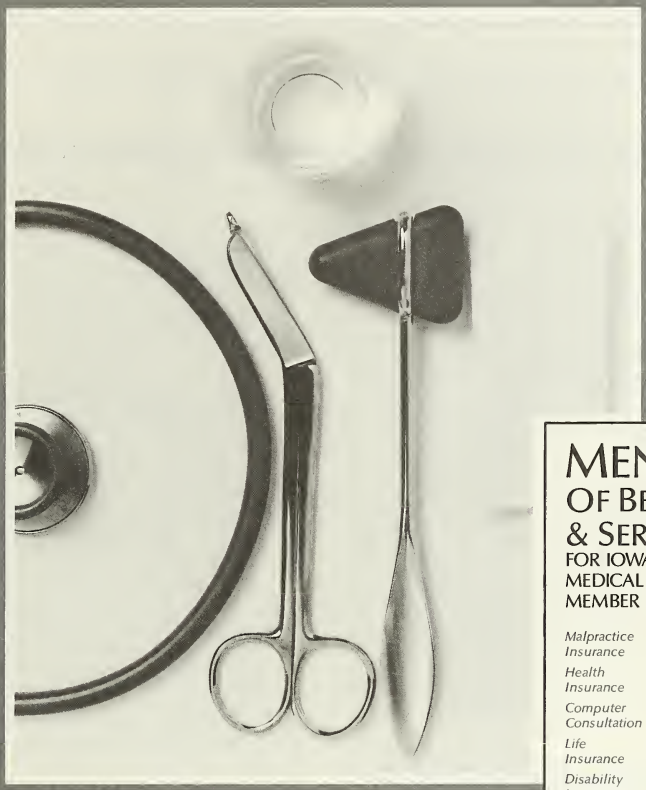
All stones were removed in 88% of those patients in whom the sphincterotomy cut could be made. Stones remained in 12%. In these cases, the stones were too large to be removed after the cut was made and the patients moved on to surgical exploration of the common duct.

Length of hospital stays for the patients after sphincterotomy is usually one to 2 days, with at least one day mandated by IV antibiotics post-procedure.

In summary, endoscopic sphincterotomy, commonly used for removal of retained or recurrent common duct stones, is a safe, effective procedure. It results in removal of all stones in a high percentage of patients, with a large savings in morbidity, expense and length of hospital stay.

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MENU
OF BENEFITS & SERVICES
FOR IOWA MEDICAL SOCIETY MEMBER PHYSICIANS

Malpractice Insurance

Health Insurance

Computer Consultation

Life Insurance

Disability Insurance

Financial Planning

Debt Collection

Credit Card

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Workers' Compensation

Office Overhead Insurance

Practice Management

THE IOWA MEDICAL SOCIETY — MEETING YOUR NEEDS!

There are certain crucial needs the Iowa physician must satisfy to practice medicine within legal bounds. Included here are such matters as licensure, continuing education, maintenance of narcotic authorization, etc.

There are additionally other needs equally as important to the Iowa medical practitioner. Illustrative here are medical liability insurance, health insurance for self, family and employees, insurance protection against death or disability, etc.

Thirdly, there are needs which, if met, give the physician extra comfort in knowing actions or precautions have been taken to meet particular contingencies. Reference is made here to credit capacity, debt recovery support, practice management, etc.

Seeking to deliver in this broad arena, the Iowa Medical Society has developed an array of support services and products for consideration by its member physicians. The IMS Committee on Member Services is responsible for the ongoing evaluation of these programs as to their worth and receptivity. It is the further duty of the Committee to consider and recommend appropriate new programs.

This folder highlights the several programs furnished by the Iowa Medical Society and its subsidiary, IMS SERVICES, or by one of several outside companies with which a positive working relationship has been established. Detailed information is available on any program described.

MEDICAL MALPRACTICE INSURANCE

The Iowa Physicians Mutual Insurance Trust (IPMIT) is a key member benefit. This important program has been operational since 1985. IPMIT medical liability insurance is available to qualified physician members of the Iowa Medical Society. The limits of coverage extend to $5 million. The program is fully regulated by the State of Iowa. Expectations are that close to 1,000 physicians will be insured by the third anniversary of IPMIT on 2/1/88. Extensive physician leadership is involved in the IPMIT underwriting, claims and risk management divisions. Marketing of IPMIT is assigned to IMS SERVICES, a subsidiary of the Iowa Medical Society; IMS SERVICES should be contacted for information.

HEALTH INSURANCE

The Statewide Physicians Group Health Program is open to members of the Iowa Medical Society, their families and their employees. The program is underwritten by Blue Cross/Blue Shield and includes several deductible options. Hospital and medical/surgical benefits are furnished with dental coverage as an additional option. New IMS members have 90 days to enroll; at the beginning of each year, an open enrollment is held for existing members. The program is sold and serviced by The Prouty Company. Information may be obtained by contacting either Prouty or IMS SERVICES.

ACCIDENT AND SICKNESS DISABILITY INSURANCE

Three insurance coverages are available in this area. All are administered by The Prouty Company. Detailed information about each program may be obtained from The Prouty Company.

Crown Life — Benefits are available to $12,000 per month. Definition of disability is *your specialty* for full term of contract. Other optional benefits include income replacement, residual disability, cost of living adjustment rider, lifetime sickness benefits, and future increase option. Right of renewal and rates are guaranteed to age 65. Coverage is conditionally renewable between ages 65 and 72 for practicing physicians. Various waiting periods (30, 60, 90, 180 or 365 days) are available. All IMS members in active practice age 60 or under may apply.

Continental Insurance — Benefits are available to $6,000 monthly. Duration of benefits is up to lifetime for accident and age 65 for illness. Definition of disability is *your specialty* for full term of contract. Reduced rates are offered for insureds under age 40. Benefits are available from the first day of disability for accident and the eighth day (or first day of hospital confinement) for sickness. Optional plans allow different waiting periods. Special renewal features and conversion options are provided. All new IMS members are eligible for the base amount up to 90 days regardless of medical history. Insurable members are eligible any time prior to age 55. Coverage continues to age 70 with special conversion available after age 70.

UNUM (Union Mutual) — Benefits are available to $25,000 monthly ($300,000 annually) for physicians and/or their employees. In offices with 10 or more employees, the issuance of coverage is guaranteed. Other features include residual disability, conversion options and pension accrual. Applicants must be age 65 or under. The coverage is restricted to offices with more than 10 employees.

OFFICE OVERHEAD EXPENSE INSURANCE

This disability insurance coverage is available in selected amounts from $500 to $6,000 monthly. It is intended as a reimbursement against office expenses, e.g., rent, staff wages, utilities, professional liability insurance, etc. Benefits begin after a selected waiting period of either 15 or 30 days. Benefits are payable to 24 months. The program is underwritten by the Commercial Insurance Company. The program is administered by The Prouty Company.

LIFE INSURANCE

Several life insurance options are provided for interested IMS-member physicians. Unless otherwise specified, the programs listed below are administered by The Prouty Company.

North American Company for Life and Health Insurance — This term insurance has a minimum limit of $50,000; no upper limits are set. The policy is guaranteed renewable/noncancelable; rates and renewability are guaranteed. A special premium discount is available to nonsmokers. Coverage is provided to spouses with a 5-year rate "set back" for female applicants. Benefits are not reduced with age. Coverage is renewable to age 75 with full conversion possible without evidence of insurability for those under age 65. Waiver of premium is included automatically. Any IMS member under age 65 may apply — as well as spouses.

Hawkeye National Life Insurance — This universal life program enables the IMS member to "buy term and invest the difference" under one contract. Favored tax treatment is accorded the investment fund. Premiums and face amount may be adjusted upward and downward depending upon circumstances. Modified underwriting allows a previously substandard or rated risk the possibility of standard life insurance. Coverage is available for spouses and children. Any IMS member under age 85, spouse, family member, employee or employee family member may apply. The amount of coverage is at the option of the insured with a minimum of $25,000.

Hawkeye National Life Insurance — Called "Investor One," this product is a response to the 1986 federal tax reform act. It has guaranteed safety of principal with high interest. It provides tax deferred growth until surrender or amortization. It allows for an annual net interest free loan. There are no deductions to cover sales or administrative fees. Tax free death benefits are available through the life insurance mechanism; modified underwriting is used on substandard applicants. The minimum deposit is $10,000 with the maximum $500,000. Coverage is based on a single premium deposit at time of application. It is available to any IMS member.

Lincoln Benefit Life — This insured retirement annuity contract is provided for IMS members, their employees and families. It has competitive interest rates, tax advantages and income options, plus safety. Payment is possible either in a single amount or in periodic contributions. The minimum annual contribution in the first year is $5,000. The program is called "Futurist III"; it requires no medical underwriting and carries no policy fees, front-end sales charge or management fee. It is available to interested member physicians through Coordinated Financial Services.

SPECIAL INSURANCE COVERAGE

An insurance program furnishing high benefit limits for accidental death and dismemberment may be obtained by IMS members through the Insurance Company of North America. The coverage program is administered by The Prouty Company. Coverage limits range from $25,000 to $250,000. Special permanent and total disability features are available including loss of sight. Coverage is available with no medical underwriting and is renewable to age 70. IMS members under age 65 may apply.

WORKERS' COMPENSATION INSURANCE

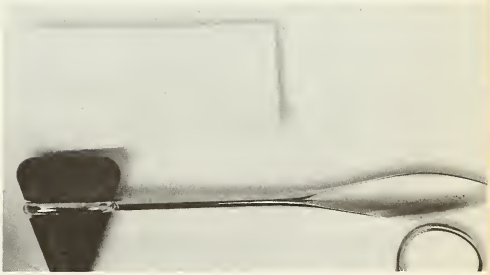
This long-standing program enables member physicians to obtain the Workers' Compensation coverage which is required by law. It provides benefits for work-related injuries. In existence for more than 10 years, the program has a competitive rating structure, plus it has paid annual dividends to the participants. The program is provided through the Dodson Insurance Group. Information is available from IMS SERVICES or Mr. Ken Coulter, Dodson representative, 205 Eighth Avenue South, Clear Lake, Iowa 50428 (515/357-6739).

FINANCIAL/RETIREMENT PENSION PLANNING

Counsel and assistance in each of these interrelated areas is available to member physicians through the Iowa Medical Society. For several years special seminars in financial planning have been presented for interested IMS-member physicians. These programs have been offered in collaboration with Coordinated Financial Services. Individual physicians, as well as offices and clinics, may avail themselves of personal planning through either The Prouty Company or Coordinated Financial Services. Assistance is furnished on request in the development and administration of plans intended to achieve sound and beneficial financial goals.

COMPUTER ASSISTANCE PROGRAM

Will a computer make your practice more productive? Help in deciding is available from the Iowa Medical Society Computer Assistance Program. This 3-phase program includes educational seminars, individual consultation and feasibility analysis, and system availability. IMS/CAP is provided by Abbey & Abbey, Consultants, Inc., in collaboration with the Iowa Medical Society. The goal is to supply interested physicians with comprehensive support in the consideration of computerization. Detailed information will be supplied either by Abbey & Abbey or IMS SERVICES.



PRACTICE MANAGEMENT CONSULTATION

Greater productivity! Increased efficiency! Quality enhancement! Overhead containment! Strengthened risk management! Increasingly, Iowa physicians are addressing these topics. Outside consultation is available through this program, which is offered in collaboration with Abbey & Abbey, Consultants, Inc. Information on this program may be obtained by contacting Abbey & Abbey or IMS SERVICES.

GOLD MASTERCARD PROGRAM

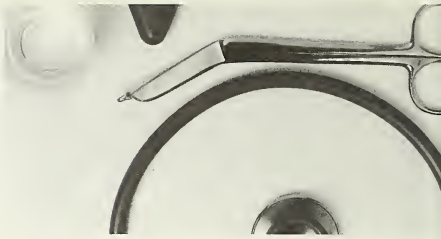
Nearly 500 IMS-member physicians are using Gold MasterCards acquired under this program, which began in 1985. No card fee is charged in the first year; attractive high credit limits are available to cardholders. The program is offered through Trans National Financial Services. Information may be requested from IMS SERVICES.

DEBT COLLECTION SERVICE

Sponsored by medical associations in many states, I.C. System is endorsed by the Iowa Medical Society to perform debt collection services for offices and clinics of member physicians. Nearly 300 Iowa physician offices and clinics use this program, which has collected nearly $3 million in outstanding debts. Detailed information about the program is available from IMS SERVICES.

AUTOMOBILE INSURANCE

This personal automobile insurance is available to member physicians, their families and their employees. Various deductibles and coverage options are provided. Competitive premiums exist under this IMS-sponsored program, which is underwritten by the BLC Insurance Company and administered by The Prouty Company. All IMS members with valid driver's licenses may apply.



AUTOMOBILE RENTAL DISCOUNTS

A car rental discount program is available to IMS-member physicians through Avis. IMS/Avis identification cards have been distributed to all member physicians. Duplicate cards may be obtained from the office of IMS SERVICES.

TRAVEL PROGRAMS

Each year the Iowa Medical Society selects several outstanding travel opportunities provided by INTRAV, a highly respected travel organization, and offers these trips to interested member physicians. Information on this ongoing program and specific "travel adventures" may be obtained by contacting the Iowa Medical Society.

PRINTING SERVICES

Medical offices require forms, stationery, envelopes, prescription pads and a variety of printed items. The Iowa Medical Society Print Shop is actively providing such materials to interested offices and clinics on an extremely cost effective basis. Physicians interested in this assistance may contact the Iowa Medical Society Print Shop.

INFORMATION/APPLICATION SOURCES

As noted in each section, detailed information on the Iowa Medical Society-sponsored programs is available from several sources. These contact points are either companies directly part of the IMS or are ones with which the IMS has had a long and good relationship. Please refer to the listing below for addresses/telephone numbers for sources of complete information on the IMS-sponsored programs:

IOWA MEDICAL SOCIETY — *1001 Grand Avenue, West Des Moines, Iowa 50265; telephone — 515/223-1401 or 800/422-3070 (In-state WATS)*

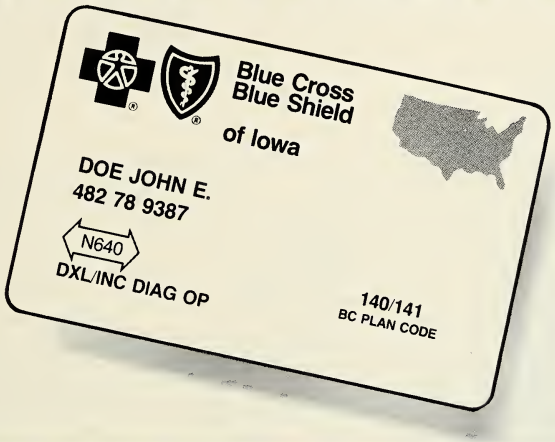
IMS SERVICES — *1239 Eighth Street, West Des Moines, Iowa 50265; telephone — 515/223-2816 or 800/642-6054 (In-state WATS)*

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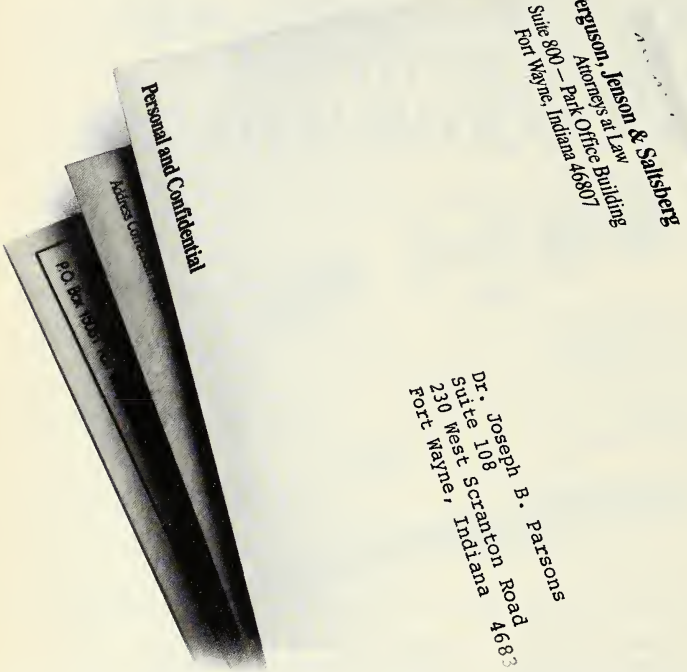
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Marion E. Alberts, M.D.

The Editor Comments



Membership

THE GRANDEUR OF NATURE is a kaleidoscope that never ceases. The roaring surf of the ocean, the rippling of a small stream or the immenseness of mountains can stir the human soul. Yet, many are not impressed. I am not among those for I enjoy the wonders of nature and the complexity of life. To observe and meditate upon our surroundings, wherever we may be, fulfills our being. Life can only be emptiness should we fail to look about us, or avoid searching for other marvels of nature. It is not only the inanimate geologic wonders we should seek, but the living things as well; flowers, creatures of the wild and our own mankind. It is on the latter category I wish to make some observations.

Man is by nature gregarious. It is not the norm to stand alone and aloof. Communication with others is a great part of life, be it to receive information (e.g. newspapers, radio, books, etc.) or to impart knowledge as with teaching or simple conversation with others. Group activities become a part of that fantastic entity of the nature of man.

This issue of IOWA MEDICINE concerns membership in our medical society. Many physicians of Iowa are active members of the Iowa Medical Society. Those who elect to remain apart miss the advantages and benefits of membership.

Medical practice, needless to say, has changed tremendously. I refer not to technologic advances but to the business aspects. Our profession is no longer the primary controlling factor of the provision of health care. We are influenced — nay, controlled in many ways — by governmental regulations, insurance carriers, hospital (Joint Commission of Accreditation of Hospitals) constraints and restraints and legal rulings. All this is not bad, but it becomes a near impossibility to conform alone. Herein comes the value of being a part of the medical society. Through group effort, influences can be directed for the good of all. Granted, some decisions may not satisfy each individual but the overall effect can be a strong factor in making the profession more favorably visible. Through actions by the House of Delegates and functions of various committees, our need to fulfill our commitments to society can be directed to a common goal. That common goal is not only to protect our interests but to provide the best possible medical care available.

There are numerous other advantages to belonging to your medical society. These are addressed in this issue. If you desire the benefits of various forms of group insurance they are available. Availability of professional liability insurance is an ongoing dilemma. The Iowa Medical Society can provide that insurance. Various conferences are held each year addressing such subjects as risk management, computer use in the office, speech training, leadership and various medical topics. There is something for all. Be an enthusiastic member, enjoy the benefits and fulfill your professional life as a member of the Iowa Medical Society. — M.E.A.

A Summer Day in Retirement

WHAT CAN A retired doctor do on a summer day when it's too hot to play golf and the Iran/Contra hearings are over? Read a book? No, that's for winter. Surely there must be something interesting to do.

Why not a whole day with the tube: sports, intellectually challenging panels, artistic and cultural entertainment of high sophistication? Who could ask for more? Let's get right to it.

First of all, the sports channel and something called *Rollermania*. This turned out to be a ridiculous team sport with 5 players on each team. The object seemed to be for all 10 to skate around a small oval rink at considerable speed and knock, upend, or deck an opponent. The scoring system was not clear to a novice observer.

Lest this is thought to be a chauvinistic male sport, we are happy to report that each team had a female unit as well as a male unit. The females were as violent as the men.

Next we faced a perplexing problem: whether to watch *Jimmy Swaggart*, the charismatic TV evanglist, or the *Truck and Tractor Pull* on the sports channel, for they were both on at the same time. We decided to watch a bit of each, switching back and forth between the channels. The Reverend Swaggart is said to be a spellbinder who sometimes "talks in tongues" (glossolalia to you). This alone would be worth hearing, for it's not easy, and some who have tried just can't do it.

Jimmy wasn't very exciting this day. He was quite reserved and talked about a biblical prediction of 10 periods of influence in the Mediterranean basin: the Roman period, the Grecian, the Babylonian, etc.

What of the *Truck and Tractor Pull?* This "sport" is about as exciting to watch as is a weight-lifting contest, or the shot-put. The truck or tractor pulls a long weighted cart-like device, and to go 150 feet is a "full pull" — a triumph. Needless to say, a "full pull" was greeted by the spectators with much enthusiasm. The names of the contesting vehicles were more interesting than the contest itself — names such as Big Foot, Shake Rattle and Roll, Ol' Yeller, Rat Patrol, and Ragin Cajun.

Next, a movie was spotted entitled *Making Love*. It sounded interesting. As one gets older, he tends to get a bit out of touch and continues to think in terms of the old-fashioned way. This movie might be an opportunity to learn if there is anything new along these lines. Unfortunately, lunch and a nap intervened, and when the tube was turned on again, only about 15 minutes of the movie remained:

It was a poignant scene; Jack and Claire were separating, and when Jack departed, Claire faced the camera and told of her love for Jack and her sorrow that now she would never be able to bear him a child.

"The afternoon was wearing down, and exhaustion was beginning to set in, but it was important to persevere. And then, a breath of fresh air — the Oprah Winfrey talk show!"

They met some years later at a mutual friend's funeral. Jack, at Claire's suggestion, followed her home to meet her husband, Larry, and their 2-3 year old boy. The boy's name was something that sounded like "Rupert," which seemed to refer in some way to the past. Claire assured Jack that Larry was a fine husband and father, but (and this with a rueful smile) he didn't like her Gilbert and Sullivan records. Jack responded, with a rueful smile, that his boy friend didn't like Gilbert and Sullivan either. Jack then drove off, and Claire walked back to the house and joined Larry and Rupert. We sensed that there was a clue in there somewhere, but you figure it out.

Looking down the TV schedule, we came across *Hot Potato*. This was doubtless one of those gourmet chef shows, but no — and you're not going to believe this — it was a game show. Why it was called Hot Potato was not explained. The game being played was a

game of association, something called "Celebrity and Partner." There were 3 contestants (a young man and 2 young ladies) operating as a team. As the right answer was given and the money advanced, the 3 jumped up and down with glee and clapped their hands. When the final choice was $5,000, those in the audience all yelled "Go for it!," which they did. The final association posed was: James Garner and Mariette Hartley or (something like) Suzie Smith. The correct answer, Mariette Hartley, came forth without hesitation. Much cheering. Everyone was happy.

Play the Percentages followed — an equally stupid game show. The less said about it, the better.

Enough of game shows, so back to sports, this time with *AWA Wrestling*. Leon "Full Power" White (6'4", 370 lbs.), a former NFL football player, was one of the contestants. After throwing and knocking his opponent about for a time, "Full Power" ended the match by jumping in the air, then landing, belly down, on his supine and prostrate opponent. A great sport.

The afternoon was wearing down, and exhaustion was beginning to set in, but it was important to persevere. And then, a breath of fresh air — the *Oprah Winfrey* talk show! Oprah, as you may know, is a charming and attractive black lady with a refreshing candor. The show is good. But aside from that, the country owes Oprah a debt of gratitude, for she has succeeded in putting Phil Donahue in his proper place — a distant also-ran.

So went the day, yet something seemed to be missing. What could it have been? Well of course, somehow we had missed Vanna White — a truly deplorable oversight.

All in all, what could one say after this day? Two things: 1. No human being alive could survive another such day. 2. Pray for cooler days, and a return to the links. — DANIEL F. CROWLEY, M.D.

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Letter to the Editor

Teen Pregnancy

Dear Editor:

The August issue of IOWA MEDICINE was of particular interest to one who is involved in obstetric care at Broadlawns Medical Center, because 30% of our maternity patients are in their teen years. In the past 5 years, over 1,000 teen mothers delivered here. The number is quite stable from year to year. We have collected some raw data on the last 200 cases, to wit:

(1) 10-15% are planned pregnancies, (2) Most of the young women thought they were in a long term permanent relationship when the pregnancy began, (3) 32% of the fathers split soon after the diagnosis was made; the longer the follow up the more likely the separation, (4) Only 30% have finished school; most became pregnant *after* dropping out, (5) 21% had a positive culture for Chlamydia, gonococcus or herpes at some time during the pregnancy, (6) 4% had Pap smears showing dysplasia (another STD), (7) 66% came for first care later than the 12th week; some are first seen in labor, (8) 55% are smokers — 11% admit use of street drugs — 11% admit regular use of alcohol and (9) 12% manifest pre eclampsia — twice increased compared to the rest of our obstetric patients.

In summary, teen pregnancy is common at Broadlawns. Most are unplanned. Prenatal visits are fewer than ideal. Adoption is rare; most mothers keep their babies. The longer the follow up, the more likely it is the father of the baby has drifted away. The majority of the mothers have dropped out of school, most before becoming pregnant. Sexually transmitted disease is commonly seen as is use of tobacco, alcohol and street drugs. Pre eclampsia is increased. Medical outcomes are satisfactory. Social outcomes are another story.

The result of teen age sexual activity is pregnancy and sexually transmitted disease. If rewarding, enriching relationships are a result, they are invisible to us. Education from all directions seems our best hope. — *Patrick C. Reddin, M.D., Director of Obstetrics-Gynecology, Broadlawns Medical Center, Des Moines, Iowa*



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Richard M. Caplan, M.D.

CME Notebook



What's in a (Middle) Name?

SUPPOSE I ASKED YOU "What's in a name?" and then elaborated, without waiting for you to answer, that after all, a gardenia by any other name would smell as sweet. You'd feel uncomfortable, I'd bet — not because you insist on the importance of a name or deny the sweetness of a gardenia's fragrance, but because you assume I was quoting a famous expression and had it wrong. If I asked you who "said" it — rose instead of gardenia — you might answer Romeo but not be able to recall his family name (Montague). Or maybe you'd answer Shakespeare, and if pushed, remember his given name was William. But if nudged further, you'd not be able, I wager, to recall his middle name.

Suppose again. Consider a quiz in which I ask you to identify T. Eliot, O. Simpson, John Rockefeller, and H. Mencken, but allowed you to insert a middle initial (J, L, S or D) into each name before you attempted your task. Sure helps, doesn't it?

Mozart doesn't need Wolfgang to keep you from confusing him with his father, but Wolfgang without Amadeus doesn't sit right. Likewise, Bach means Johann rather than his well known sons, but if you say Johann, you'd better be there with Sebastian as well.

Dr. Caplan is Associate Dean for Continuing Medical Education at the University of Iowa College of Medicine.

A corresponding compulsion exists for Georg Handel or Franz Haydn. To have "arrived" as a musician is signalled by loss of given names altogether, as witness (Bela) Bartok, (Charles) Ives, (Enrico) Caruso or (Luciano) Pavarotti. For a few great painters we preserve an opposite tradition, so that only a rare one of us knows any names but Leonardo, Michelangelo, or Raphael for the great Italian renaissance masters. On the other hand, Pablo, Marc, or Vincent don't assure our identification of Picasso, Chagall or Van Gogh (even though he persisted in the eccentricity of signing his canvases "Vincent"). The incredible hubris of some modern entertainers of trying to be conspicuous by use of a single name (Elvis, Madonna, Prince) is a transparent advertising ploy, not a mark, sign or recognition of greatness.

"And as for me, my middle name is a mystery, and may cheerfully remain so to all but a tiny number of acquaintances and bureaucratic functionaries."

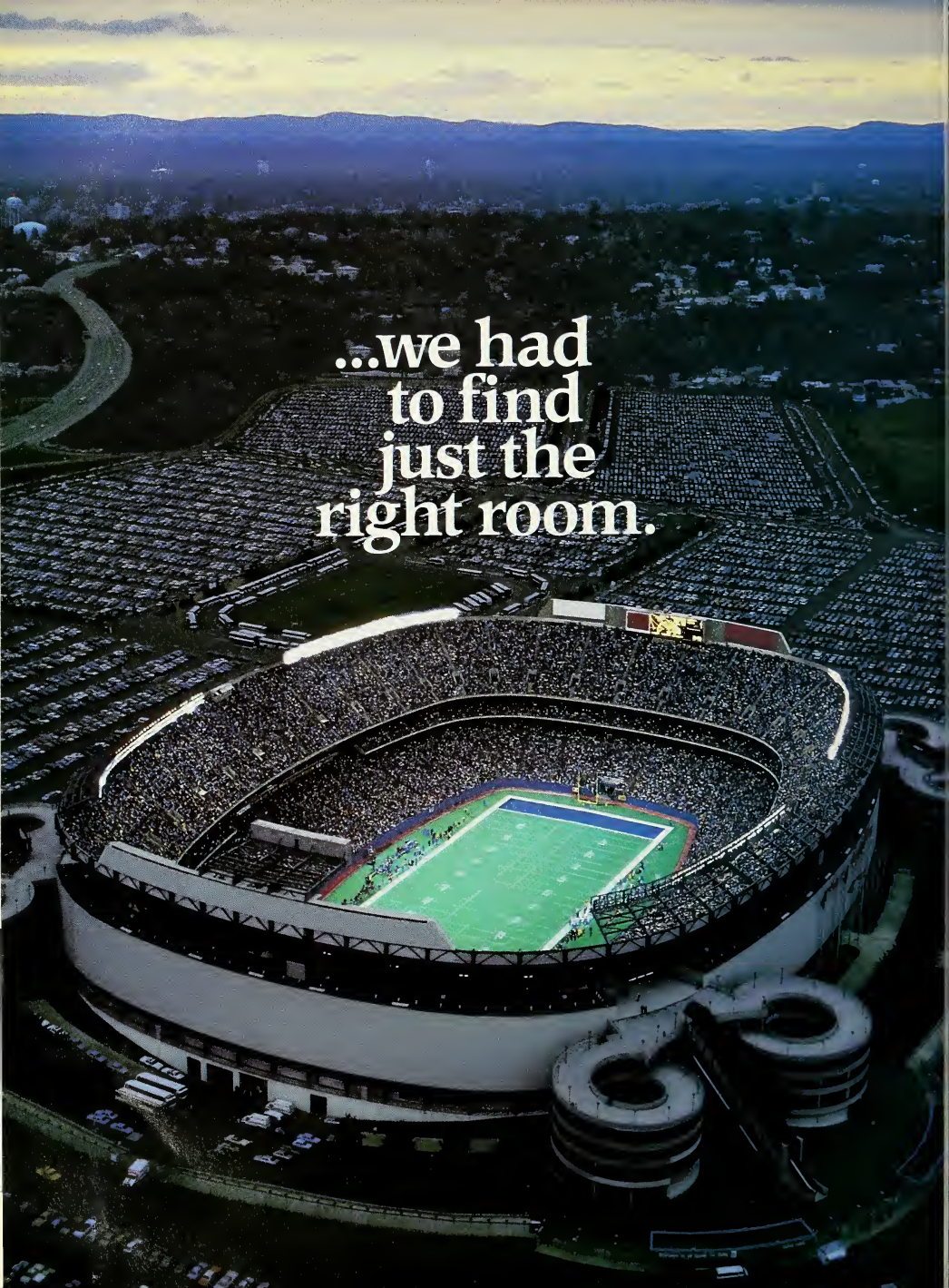
Context matters. Even if you disagreed with my choices, you'd know whether I meant Karl or Groucho if I asserted that Darwin, Marx, Freud and Einstein have been the most influential thinkers of the modern age.

To insert a middle name — even the correct one — into George Washington, Thomas Jefferson or Abraham Lincoln would only add

(Please turn to page 511)

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DESCRIPTION. INDERAL LA is formulated to provide a sustained release of propranolol hydrochloride. INDERAL LA is available as 60 mg, 80 mg, 120 mg, and 160 mg capsules.

CLINICAL PHARMACOLOGY. INDERAL is a nonselective, beta-adrenergic receptor-blocking agent possessing no other autonomic nervous system activity. It specifically competes with beta-adrenergic receptor-stimulating agents for available receptor sites. When access to beta-receptor sites is blocked by INDERAL, the chronotropic, inotropic, and vasodilator responses to beta-adrenergic stimulation are decreased proportionately.

INDERAL LA Capsules (60, 80, 120, and 160 mg) release propranolol HCl at a controlled and predictable rate. Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours. When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL Tablets. The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol, resulting from the slower rate of absorption of propranolol. Over a twenty-four (24) hour period, blood levels are fairly constant for about twelve (12) hours then decline exponentially.

INDERAL LA should not be considered a simple mg-for-mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose. When changing to INDERAL LA from conventional propranolol, a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval. In most clinical settings, however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect, INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate, systolic pressure and rate pressure product. INDERAL LA can provide effective beta blockade for a 24-hour period.

INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension; it may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic. INDERAL LA is not indicated in the management of hypertensive emergencies.

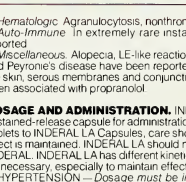
Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris.

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache. The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use.

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis, especially for treatment of exertional or other stress-induced angina, palpitations, and syncope. INDERAL LA also improves exercise performance. The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation. Clinical improvement may be temporary.

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock; 2) sinus bradycardia and greater than first-degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL.

ONCE-DAILY
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WARNINGS. CARDIAC FAILURE. Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely; or INDERAL should be discontinued (gradually, if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following *abrupt* discontinuance of INDERAL therapy. Therefore, when discontinuance of INDERAL is planned, the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema).—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

MAJOR SURGERY. The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, eg, dobutamine or isoproterenol. However, such patients may be subject to protracted severe hypotension. Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers.

DIABETES AND HYPOGLYCEMIA: Beta blockers should be used with caution in diabetic patients if a beta-blocking agent is required. Beta blockers may mask tachycardia occurring with hypoglycemia, but other manifestations such as dizziness and sweating may not be significantly affected. Following insulin-induced hypoglycemia, propranolol may cause a delay in the recovery of blood glucose to normal levels.

THYROTOXICOSIS: Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol may change thyroid function tests, increasing T_4 and reverse T_3 and decreasing T_3.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case, this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS. GENERAL. Propranolol should be used with caution in patients with impaired hepatic or renal function. INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies.

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure. Patients should be told that INDERAL may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

CLINICAL LABORATORY TESTS. Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS: Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension.

Caution should be exercised when patients receiving a beta blocker are administered a calcium-channel-blocking drug, especially intravenous verapamil, for both agents may depress myocardial contractility or atrioventricular conduction. On rare occasions, the concomitant intravenous use of a beta blocker and verapamil has resulted in serious adverse reactions, especially in patients with severe cardiomyopathy, congestive heart failure or recent myocardial infarction.

Aluminum hydroxide gel greatly reduces intestinal absorption of propranolol.

Ethanol slows the rate of absorption of propranolol.

Phenytoin, phenobarbitone, and *rifampin* accelerate propranolol clearance.

Chlorpromazine, when used concomitantly with propranolol, results in increased plasma levels of both drugs.

Antipyrine and *lidocaine* have reduced clearance when used concomitantly with propranolol.

Thyroxine may result in a lower than expected T_3 concentration when used concomitantly with propranolol.

Cimetidine decreases the hepatic metabolism of propranolol, delaying elimination and increasing blood levels.

Theophylline clearance is reduced when used concomitantly with propranolol.

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY. Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

PREGNANCY: Pregnancy Category C. INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose. There are no adequate and well-controlled studies in pregnant women. INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

NURSING MOTHERS: INDERAL is excreted in human milk. Caution should be exercised when INDERAL (propranolol HCl) is administered to a nursing woman.

PEDIATRIC USE: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

Cardiovascular: Bradycardia; congestive heart failure; intensification of AV block, hypotension; paresthesia of hands; thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type.

Central Nervous System: Light-headedness; mental depression manifested by insomnia, lassitude, weakness, fatigue, reversible mental depression progressing to catatonia; visual disturbances, hallucinations; vivid dreams; an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics. For immediate formulations, fatigue, lethargy, and vivid dreams appear to be related.

Gastrointestinal: Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic: Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory: Bronchospasm.

Hematologic: Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Auto-Immune: In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous: Alopecia, LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Dermatomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily. If patients are switched from INDERAL Tablets to INDERAL LA Capsules, care should be taken to assure that the desired therapeutic effect is maintained. INDERAL LA should not be considered a simple mg-for-mg substitute for INDERAL. INDERAL LA has different kinetics and produces lower blood levels. Retitration may be necessary, especially to maintain effectiveness at the end of the 24-hour dosing interval.

HYPERTENSION—*Dosage must be individualized.* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic. The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved. The usual maintenance dosage is 120 to 160 mg once daily. In some instances a dosage of 640 mg may be required. The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks.

ANGINA PECTORIS—*Dosage must be individualized.* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three- to seven-day intervals until optimal response is obtained. Although individual patients may respond at any dosage level, the average optimal dosage appears to be 160 mg once daily. In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established.

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS).

MIGRAINE—*Dosage must be individualized.* The initial oral dose is 80 mg INDERAL LA once daily. The usual effective dose range is 160-240 mg once daily. The dosage may be increased gradually to achieve optimal migraine prophylaxis. If a satisfactory response is not obtained within four to six weeks after reaching the maximal dose, INDERAL LA therapy should be discontinued. It may be advisable to withdraw the drug gradually over a period of several weeks.

HYPERTROPHIC SUBAORTIC STENOSIS—80-160 mg INDERAL LA once daily.

PEDIATRIC DOSAGE—At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use.

*The appearance of these capsules is a registered trademark of Ayerst Laboratories.

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CME NOTEBOOK

(Continued from page 510)

confusion, whereas Ralph Emerson without his Waldo, Oliver Holmes without his Wendell, or Arthur Doyle without his Conan would all get lost in the crowd. And as for me, my middle name is a mystery, and may cheerfully remain so to all but a tiny number of acquaintances and bureaucratic functionaries. On the other hand, the same holds for my wife's first name, her family having cheerfully forsaken it immediately after assigning it. Similar reasons, and others, must account for the form J. Pierpont Morgan.

Fascinating as these variations must surely seem, you may by now wonder whether such ruminations are leading anywhere. Not very far, actually, but I can at least explain what prompted me to awaken early and put to paper these churning observations. It happened because I was reading an extraordinary book last night by Joyce Carol Oates, a modern writer whose identity seems to require the middle name for recognition, rhythm, euphony, or who knows. Even if the name doesn't *require* the Carol, it never appears in public without it. The book, *Wonderland*, from 1973, is long and delightfully wierd, but gripping. Many of its major characters are physicians or patients. With a stunning ability to probe nuances of emotions, shining a bright light on the dark places of illness, Oates blends doctors, patients, families and disease into a firm clot that lodges in one's brain. Any clot that reaches there must make some difference. This one, sublethal, packs a big wallop. You'll learn more about people and how to practice humane medicine from this novel than from a tall stack of medical journals.

(Don't feel bad about not knowing Shakespeare's middle name. Like Harry Truman, he didn't seem to have one.)



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AIR FORCE



Drug Therapy Review

REYNOLD SPECTOR, M.D., Editor

Use of Approved Drugs in a Nonapproved Way

ONCE UPON A TIME, which drug a doctor used and in what dose was a decision made by consultation between the doctor, the patient, and perhaps God. Certainly, it was none of the business of the federal government. In that innocent, pre-Kefauver era, the Food and Drug Administration (FDA) was responsible only for the safety of drugs, and claims of drug efficacy, as made by some of the members of the pharmaceutical companies, were often less than accurate. As a result, this unsatisfactory situation attracted the attention of the public and Congress, and in 1962, the FDA was mandated a responsibility to see that the drugs used in this country were safe, effective, and not falsely advertised. This meant that before a drug company could claim that a new drug was useful for the treatment of a specific disease, it must file acceptable evidence with the FDA that it did indeed have a salutary effect in that condition. In addition, even if approved for that disease, before the drug company could advocate its use for another disease, appropriate data to support this additional claim must be filed and accepted as well.

As a result, all forms of drug labeling, including the package insert, the Physicians Desk Reference (PDR), and that legal extension of the drug label called advertising, can list as indications for use only those conditions for which a drug has been shown to be effective to the satisfaction of the FDA. Its use in that circumstance constitutes an "approved" use so long as the drug is used at the dose published for that indication. By inference, if a condition or disease does not appear on that list and the drug is used to treat that unlisted medical problem, the drug has been used in a "nonapproved" way. The drug may also be used in a "nonapproved" way if administered in a dose or by a route not listed, or to an age group outside those specified.

"Unfortunately, any physician can probably recall a situation where he or she has used drugs for a condition not listed in the package insert, or at a dose or by a route of administration not mentioned."

Unfortunately, any physician can probably recall a situation where he or she has used drugs for a condition not listed in the package insert, or at a dose or by a route of administration not mentioned. For example, those who are using one of several vasodilator drugs for certain kinds of shock or heart failure, who are enthusiasts for megadose penicillin, or prescribe propranolol for the treatment of nonspecific tremors, are using an "approved" drug in a "nonapproved" way.

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This information for Iowa physicians is furnished and sponsored by the University of Iowa Hospitals and Clinics.

DRUG THERAPY REVIEW

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Some of the potential problems that could arise out of this kind of use are obvious. A physician who uses an approved drug in a nonapproved way is operating in an area of therapeutics outside the usual guidelines developed by the FDA.

One of the more horrendous pictures that could be imagined as arising out of this situation is the one of a sincere young physician sitting and sweating in a witness chair, having a package insert waved in his face by a very aggressive tort lawyer.

Less dramatic, but perhaps even more disturbing, are the potential long-term effects of this situation. It could mean that drugs could

"There is no doubt that prescribing has become and is becoming more complex both medically and legally."

only be used for the therapy of diseases for which the FDA has received, reviewed, and ccepted data that documents efficacy, and that the drug would have to be used in the dose and by the same route as in the studies that provided that data. Since the FDA frequently acts with glacier-like speed and is not immune to outside pressures, both pro and con, delays between what has been accepted as useful therapy by intelligent physicians and the time it takes a drug company to complete the paperwork and get FDA approval may be years.

Finally, the ultimate effect could be that the FDA, not the patient's physician, is the one who decides what is best for that individual. This represents a revolutionary change in our concepts of health care since it challenges a two-thousand-year-old principle of medicine; that it is the physician, in consultation with the patient, who decides what is best.

This situation was an alarming one and as a result, the subject of numerous editorials and commentaries pointing out the potential for serious damage that had arisen out of the well-intentioned efforts of Congress to prevent abuses in drug advertising. Quite clearly, this has been recognized by the members of the FDA and they have responded in an enlightened manner which indicates that they recognized the serious problems which could occur if they were made ultimately responsible for all drug use. They have provided a set of principles that can avoid most of the potential problems that might occur and have deftly removed the federal government from becoming the final arbitrator of drug therapy. These are worth quoting in detail.

. . . Concerning the use of a drug for conditions not included in its labeling, the labeling is not intended either to preclude the physician's use of his best judgment in the interest of the patient or to impose liability if he does not follow the package insert. The Commissioner clearly recognizes that the labeling of a marketed drug does not always contain all the most current information available to physicians relating to the proper use of the drug in good medical practice. Advances in medical knowledge and practice inevitably precede labeling revision by the manufacturer and formal labeling approval by the Food and Drug Administration. Good medical practice and patient interests thus require that physicians be free to use drugs according to their best knowledge and judgment. Certainly, where a physician uses a drug for a use not in the approved labeling, he has the responsibility to be well informed about the drug and to base such use on a firm scientific rationale or on sound medical evidence, and to maintain adequate medical records of the drug's use and effects, but such usage in the practice of medicine is not in violation of the Federal Food, Drug and Cosmetic Act. (Federal Register, *Vol. 40, No. 67, April 7, 1975.)*

This all seems very clear. It is up to the physician to decide what is best for the patient. While it is expected the physician will be aware and heed the information contained in drug labeling, the physician is free to use that drug in ways, either in doses or for the therapy of diseases, not listed in the package insert if the physician has decided that it is the best therapy for a patient. In other words, the FDA has recognized the limits of its responsibilities, but in doing so has left a residual of responsibilities with the physician.

The last sentence of the paragraph from the *Federal Register* makes those responsibilities clear. ". . . He has the responsibility to be

well informed about the drug and to base such use on a firm, scientific rationale or on sound medical evidence and to maintain adequate records of the drug's use and effects. . . ." In other words, it is important that the physician is prepared to justify that decision by knowledge of appropriate evidence that the use of the drug in the way contemplated is the best or only available therapy.

In addition, that therapy needs to be accompanied by suitable progress notes indicating the rationale of the therapy and its effects. Finally, in keeping with sound medical practice, it might also be wise to discuss the matter with the patient and/or family so that an informed consent is obtained.

There is no doubt that prescribing has become and is becoming more complex both medically and legally. The advent of the patient package insert and other recent developments in this area indicates these developments. The wise physician should be aware of them and be prepared to make that additional effort to acknowledge them. — J. E. KASIK, M.D., *Professor of Medicine and* GERALD SOLOMONS, M.D., *Professor of Pediatrics.*

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Iowa Department of Public Health

Statewide Plan for Nurses

Pamela Klauer Triolo, CNM, MSN
Iowa City, Iowa

RECENT MEDIA COVERAGE has heightened public awareness of the current nursing shortage. An American Hospital Association study reported a 13.6% vacancy rate in acute care institutions across the country.[1] The shortage is compounded by a national decline in nursing enrollments (1986) from 30% to 50%.[2] In Iowa, enrollment in schools of nursing has steadily declined from 2,385 in 1982-83 to 1,749 in 1985-86. In 1986-87, data indicates 1,910 students are enrolled in nursing.

Manpower studies based on criterion models have demonstrated the demand will be increasingly acute for nurses prepared at the baccalaureate and higher degree level.[3] Though many institutions have downsized, nursing positions have not decreased in number. In reality, the demand for nurses has increased as a result of rising patient acuity and technologic advances in hospitals, increased ambulatory care services, and expansion of long-term care and home health care.

According to the Iowa Board of Nursing, a total of 35,774 nurses (26,245 registered nurses and 9,529 licensed practical nurses) were licensed and living in Iowa in 1986. Eighty percent of the Registered Nurses are practicing nursing, and 60% are practicing full time. Seventy-one percent of the licensed practical nurses are practicing nursing, with 56% practicing full time.

Of the Registered Nurses employed in Iowa, 67% (14,083) practice in hospitals, 9.6% (2,015) in nursing homes, 6.9% (1,444) in physician's offices and 3.9% (822) in community health. National data indicate approximately two-thirds of the employed nurses practice in hospitals. Of the 9,529 licensed practical nurses in Iowa, 2,771 (29%) practice in hospitals, 2,478 (26%) in nursing homes and 708 (7.5%) in physicians or dentists offices.

"In reality, the demand for nurses has increased as a result of rising patient acuity and technologic advances in hospitals, increased ambulatory care services and expansion of long-term care and home health care."

In the face of the nursing shortage, the Iowa Board of Nursing has taken a proactive stance in protection of the public health and welfare. Looking beyond the current supply of nurses to the future health care needs of Iowans, the Board established a task force, Statewide Planning for Nursing, in January, 1987. The outcome of Statewide Planning will be a description of: (1) The role and future function of the nurse; (2) Projected needs for nurses at the tertiary, secondary, community, and long-term care levels; and (3) The types, geographic locations, and number of educational programs necessary to educate nurses for the state. The Board has appointed 33

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Pamela Klauer Triolo, CNM, MSN, is the Chairperson of the Iowa Board of Nursing. Ms. Triolo is currently Associate Director of Nursing, Program Administration, at the University of Iowa Hospitals and Clinics and a doctoral candidate at the University of Iowa.

This information on public health matters is furnished and sponsored by the Iowa Department of Public Health.

IOWA DEPARTMENT OF PUBLIC HEALTH

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nurses and a consumer who represent all aspects of nursing education, practice settings, and geographic locations within the state. Through data collection, problem-solving, and planning, task force members will have an opportunity to shape the future of nursing and health care in Iowa.

The Task Force is divided into operational working groups to facilitate completion of the study, scheduled to be presented to the Board in January, 1988. Four task forces report to the Steering Committee. One of the critical bases of the report is being completed by the Population/Health Needs Task Force. The purposes of this task force are to assess the current and projected demographics of the state's population; to identify the present and future health needs of Iowans; to select realistic health goals; and make recommendations regarding public policy. The aging of the population, declining birth rates, increased number of women in Iowa, socioeconomic status of Iowans, and morbidity and mortality data are some of the parameters being explored by population/health needs to identify future health care concerns of Iowans. This task force is taking a holistic perspective in its comprehensive view of the health care of Iowa citizens and describing health care delivery system, human biology, lifestyle, and environment as all interacting with their health status. This is consistent with nursing's long-standing commitment not only to the physiological, but the psychological and socioeconomic needs of the patient and family.

The Nursing Needs and Resources Task Force is studying the availability, number and type of nurses available in Iowa. Their mission is to assure that adequate numbers and appropriate types of nurses will be available to meet future health care needs. Specific issues to be addressed by this task force include: How many nurses and what kind of nurses should be available in Iowa? What are the projected needs for nursing staff at the tertiary, secondary, community, and long term care level? What should be the role and future function of the nurse in the health care delivery system? This task force is composed of 2 work groups, the Work Group on Nursing Resources and Requirements and the Work Group of Competencies. These work groups will project future requirements for nursing resources based on health/nursing needs, educational projections and future nursing roles. They will also make recommendations on future competencies of nurses based on the population/health needs assessment and input from health care institutions.

A third work group of the Nursing Needs and Resources Task Force, work group on Cost of Nursing Care, will be identifying cost for nursing care by acuity and nursing service delivery setting, identifying formats for reimbursement of nursing services, and studying the cost-effectiveness of licensed and unlicensed health care providers. Issues to be considered by this work group include the cost-effectiveness/quality of care, staffing patterns, and numbers and types of nursing interventions.

The mission of the Education Task Force is to insure that nurses are educated to meet the future nursing needs of Iowa. This task force, composed of 2 working groups, will address questions related to access to nursing education programs and articulation between programs, increasing collaboration between nursing practice and nursing education, and making recommendations regarding types, geographic locations, and number of nursing programs necessary to educate nurses for future health care needs of Iowans. Educational programs, students currently enrolled in nursing education programs, and currently licensed nurses are being surveyed to develop a data base for recommendations. Data collection for all groups is based on Federal Congressional Districts to divide the state into relatively equal population groups.

A final task force is the Public Relations Task Force. The purpose of this task force is to acquaint the public with activities related to Statewide Planning, develop materials to disseminate and promote implementation of the recommendation of the task force.

All task forces report to the Statewide Planning Steering Committee. The purpose of the Statewide Planning Steering Committee is

(Please turn to page 519)

Before prescribing, see complete prescribing information in SK&F CO. literature or *PDR*. The following is a brief summary.

* **WARNING**

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

Warnings: **Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired.** If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K^+ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K^+ intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of triamterene and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Angiotensin-converting enzyme (ACE) inhibitors can elevate serum potassium; use with caution with 'Dyazide'. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin (ACTH)). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both; hyperglycemia and glycosuria (diabetic insulin requirements may be altered); hyperuricemia and gout; digitalis intoxication (in hypokalemia); decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function. Thiazides may add to or potentiate the action of other antihypertensive drugs. Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics); Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

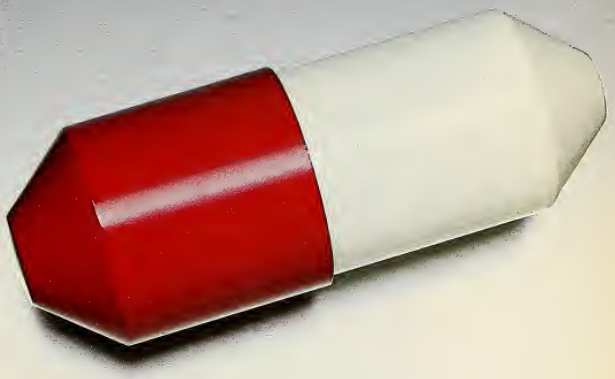
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PREMARIN® Brand of conjugated estrogens Vaginal Cream, in a nonliquefying base

1 ESTROGENS HAVE BEEN REPORTED TO INCREASE THE RISK OF ENDOMETRIAL CARCINOMA
Three independent, case-controlled studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens for more than one year. This risk was independent of the other known risk factors for endometrial cancer. These studies are further supported by the finding that incidence rates of endometrial cancer have increased sharply since 1969 in eight different areas of the United States with population-based cancer reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade. The three case-controlled studies reported that the risk of endometrial cancer in estrogen users was about 4.5 to 13.9 times greater than in nonusers. The risk appears to depend on both duration of treatment and on estrogen dose. In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible. When prolonged treatment is medically indicated, the patient should be reassessed on at least a semi-annual basis to determine the need for continued therapy. Although the evidence must be considered preliminary, one study suggests that cyclic administration of low doses of estrogen may carry less risk than continuous administration; it therefore appears prudent to utilize such a regimen. Close clinical surveillance of all women taking estrogens is important. In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding, adequate diagnostic measures should be undertaken to rule out malignancy. There is no evidence at present that "natural" estrogens are more or less hazardous than "synthetic" estrogens at equi-estrogenic doses.

2 ESTROGENS SHOULD NOT BE USED DURING PREGNANCY
The use of female sex hormones, both estrogens and progestogens, during early pregnancy may seriously damage the offspring. It has been shown that females exposed in utero to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing, in later life, a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated as not greater than 4 per 1,000 exposures. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have vaginal adenosis, epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are precursors of malignancy. Although similar data are not available with the use of other estrogens, it cannot be presumed they would not induce similar changes. Several reports suggest an association between intrauterine exposure to female sex hormones and congenital anomalies, including congenital heart defects and limb-reduction defects. One case-controlled study estimated a 4.7-fold increased risk of limb-reduction defects in infants exposed in utero to sex hormones (oral contraceptives, hormone withdrawal tests for pregnancy, or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb-reduction defects in exposed fetuses is somewhat less than 1 per 1,000. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well-controlled studies that progestogens are effective for these uses. If PREMARIN is used during pregnancy, or if the patient becomes pregnant while taking this drug, she should be apprised of the potential risks to the fetus, and the advisability of pregnancy continuation.

DESCRIPTION: PREMARIN (conjugated estrogens, USP) contains a mixture of estrogens, obtained exclusively from natural sources, blended to represent the average composition of material derived from pregnant mares' urine. It contains estrone, equilin, and 17α-dihydroequilin, together with smaller amounts of 17α-estradiol, equilenin, and 17α-dihydroequilenin as salts of their sulfate esters. Tablets are available in 0.3 mg, 0.625 mg, 0.9 mg, 1.25 mg, and 2.5 mg strengths of conjugated estrogens. Cream is available as 0.625 mg conjugated estrogens per gram.

INDICATIONS AND USAGE: PREMARIN (conjugated estrogens tablets, USP) Moderate-to-severe *vasomotor* symptoms associated with the menopause. (There is no evidence that estrogens are effective for nervous symptoms or depression without associated vasomotor symptoms and they should not be used to treat such conditions.) Osteoporosis (abnormally low bone mass). Atrophic vaginitis. Kraurosis vulvae. Female castration.

PREMARIN (conjugated estrogens) Vaginal Cream is indicated in the treatment of atrophic vaginitis and kraurosis vulvae.

PREMARIN HAS NOT BEEN SHOWN TO BE EFFECTIVE FOR ANY PURPOSE DURING PREGNANCY AND ITS USE MAY CAUSE SEVERE HARM TO THE FETUS (SEE BOXED WARNING).

Concomitant Progestin Use: The lowest effective dose appropriate for the specific indication should be utilized. Studies of the addition of a progestin for 7 or more days of a cycle of estrogen administration have reported a lowered incidence of endometrial hyperplasia. Morphological and biochemical studies of the endometrium suggest that 10 to 13 days of progestin are needed to provide maximal maturation of the endometrium and to eliminate any hyperplastic changes. Whether this will provide protection from endometrial carcinoma has not been clearly established. There are possible additional risks which may be associated with the inclusion of progestin in estrogen replacement regimens. (See PRECAUTIONS.) The choice of progestin and dosage may be important, product labeling should be reviewed to minimize possible adverse effects.

CONTRAINDICATIONS: Estrogens should not be used in women (or men) with any of the following conditions. 1 Known or suspected cancer of the breast except in appropriately selected patients being treated for metastatic disease. 2 Known or suspected estrogen-dependent neoplasia. 3 Known or suspected pregnancy. (See Boxed Warning.) 4 Undiagnosed abnormal genital bleeding. 5 Active thrombophlebitis or thromboembolic disorders. 6 A past history of thrombophlebitis, thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast or prostatic malignancy).

WARNINGS: Estrogens have been reported to increase the risk of endometrial carcinoma (see Boxed Warning). However, a recent large, case-controlled study indicated no increase in risk of breast cancer in postmenopausal women. A recent study has reported a 2- to 3-fold increase in the risk of surgically confirmed gallbladder disease in women receiving postmenopausal estrogens.

Adverse effects of oral contraceptives may be expected at the larger doses of estrogen used to treat prostatic or breast cancer or postpartum breast engorgement; it has been shown that there is an increased risk of thrombosis in men receiving estrogens for prostatic cancer and women for postpartum breast engorgement. Users of oral contraceptives have an increased risk of diseases, such as thrombophlebitis, pulmonary embolism, stroke, and myocardial infarction. Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users. An increased risk of postsurgery thromboembolic complications has also been reported in users of oral contraceptives. If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism, or during periods of prolonged immobilization. Estrogens should not be used in persons with active thrombophlebitis, thromboembolic disorders, or in persons with a history of such disorders in association with estrogen use. They should be used with caution in patients with cerebral vascular or coronary artery disease. Large doses (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast, have been shown to increase the risk of nonfatal myocardial infarction, pulmonary embolism, and thrombophlebitis. When doses of this size are used, any of the thromboembolic and thrombotic adverse effects should be considered a clear risk.

Benign hepatic adenomas should be considered in estrogen users having abdominal pain and tenderness, abdominal mass, or hypovolemic shock. Hepatocellular carcinoma has been reported in women taking estrogen-containing oral contraceptives. Increased blood pressure may occur with use of estrogens in the menopause and blood pressure should be monitored with estrogen use. A worsening of glucose tolerance has been observed in patients on estrogen-containing oral contraceptives. For this reason, diabetic patients should be carefully observed. Estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases.

PRECAUTIONS: Physical examination and a complete medical and family history should be taken prior to the initiation of any estrogen therapy with special reference to blood pressure, breasts, abdomen, and pelvic organs, and should include a Papanicolaou smear. As a general rule, estrogen should not be prescribed for longer than one year without another physical examination being performed. Conditions influenced by fluid retention, such as asthma, epilepsy, migraine, and cardiac or renal dysfunction, require careful observation. Certain patients may develop manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding, mastodynia, etc. Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients. Oral contraceptives appear to be associated with an increased incidence of mental depression. Patients with a history of depression should be carefully observed. Pre-existing uterine leiomyomata may increase in size during estrogen use. The pathologist should be advised of estrogen therapy when relevant specimens are submitted. If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated. Estrogens should be used with care in patients with impaired liver function, renal insufficiency, metabolic bone diseases associated with hypercalcemia, or in young patients in whom bone growth is not yet complete. If concomitant progestin therapy is used, potential risks may include adverse effects on carbohydrate and lipid metabolism.

The following changes may be expected with larger doses of estrogen:
a Increased sulfobromophthalein retention.
b Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3, increased norepinephrine-induced platelet aggregability.
c Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by PBI, T_4 by column, or T_4 by radioimmunoassay. Free T_3 resin uptake is decreased, reflecting the elevated TBG; free T_4 concentration is unaltered.
d Impaired glucose tolerance.
e Decreased pregnanediol excretion.
f Reduced response to metyrapone test.
g Reduced serum folate concentration.
h Increased serum triglyceride and phospholipid concentration.

As a general principle, the administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk.

Long-term, continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina, and liver. However, in a recent, large case-controlled study of postmenopausal women there was no increase in risk of breast cancer with use of conjugated estrogens.

ADVERSE REACTIONS: The following have been reported with estrogenic therapy, including oral contraceptives: breakthrough bleeding, spotting, change in menstrual flow, dysmenorrhea; premenstrual-like syndrome; amenorrhea during and after treatment; increase in size of uterine fibromyomata; vaginal candidiasis; change in cervical erosion and in degree of cervical secretion; cystitis-like syndrome; tenderness; enlargement; secretion (of breasts); nausea, vomiting, abdominal cramps, bloating; cholestatic jaundice; chloasma or melasma which may persist when drug is discontinued; erythema multiforme; erythema nodosum; hemorrhagic eruption; loss of scalp hair; hirsutism; steepening of corneal curvature; intolerance to contact lenses; headache, migraine; dizziness; mental depression; chorea; increase or decrease in weight; reduced carbohydrate tolerance; aggravation of porphyria; edema; changes in libido.

ACUTE OVERDOSAGE: May cause nausea, and withdrawal bleeding may occur in females.

DOSAGE AND ADMINISTRATION:

PREMARIN® Brand of conjugated estrogens tablets, USP

1 *Given cyclically for short-term use only.* For treatment of moderate-to-severe *vasomotor* symptoms, atrophic vaginitis, or kraurosis vulvae associated with the menopause (0.3 mg to 1.25 mg or more daily). The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible. Administration should be cyclic (eg, three weeks on and one week off). Attempts to discontinue or taper medication should be made at three- to six-month intervals.

2 *Given cyclically.* Osteoporosis. Female castration. Osteoporosis—0.625 mg daily. Administration should be cyclic (eg, three weeks on and one week off). Female castration—1.25 mg daily, cyclically. Adjust upward or downward according to response of the patient. For maintenance, adjust dosage to lowest level that will provide effective control.

Patients with an intact uterus should be monitored for signs of endometrial cancer and appropriate measures taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

PREMARIN® Brand of conjugated estrogens Vaginal Cream

Given cyclically for short-term use only. For treatment of atrophic vaginitis or kraurosis vulvae.

The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible.

Administration should be cyclic (eg, three weeks on and one week off).

Attempts to discontinue or taper medication should be made at three- to six-month intervals.

Usual dosage range: 2 g to 4 g daily, intravaginally, depending on the severity of the condition.

Treated patients with an intact uterus should be monitored closely for signs of endometrial cancer and appropriate diagnostic measures should be taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

References:

1. Lindsay R, Hart DM, Clark DM. The minimum effective dose of estrogen for prevention of postmenopausal bone loss. *Obstet Gynecol* 1984;63:759-763. **2.** Studd JWW, Thom MH, Paterson MEL, et al: The prevention and treatment of endometrial pathology in postmenopausal women receiving exogenous estrogens, in Pasello N, Paoletti R, Ambrus JL (eds): *The Menopause and Postmenopause*. Lancaster, England, MTP Press Ltd, 1980, chap 13

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IOWA DEPARTMENT OF PUBLIC HEALTH

(Continued from page 518)

to develop final recommendations and a plan for implementation of Statewide Planning for Nursing and to establish a mechanism for ongoing planning. Already at this stage, the Steering Committee has acknowledged the work has just begun in the development of a solid database from which to make recommendations for future health care needs and nursing resources. The Steering Committee will submit the final report of Statewide Planning for Nursing Task Force to the Iowa Board of Nursing for approval in January, 1988. The final report, once approved by the Board, will be available to the public.

The challenge of preparing for future nursing needs of Iowans is being met by the Iowa Board of Nursing. Through a blending of service and education, geographic representation and varied experience, Statewide Planning for Nursing Task Force members are collecting and analyzing data, studying population health needs, and developing recommendations for the future. By mobilizing the energy of nurses statewide, the role of the nurse as consumer advocate and role of the Iowa Board of Nursing in protecting the public health and welfare become well matched in this new adventure in nursing.

August 1987 Morbidity Report

Disease	Aug. 1987 Total	1987 to Date	1986 to Date	Most August Cases Reported From These Counties
Aids	2	28	12	NA
Amebiasis	3	22	33	Davis, Delaware, Johnson
Brucellosis	0	3	1	
Chickenpox	11	7581	6633	Scattered
Campylobacter	66	270	244	Scattered
Cytomegalovirus	5	18	15	Allamakee, Johnson, Polk
Eatons Agent Infection	5	44	8	Dubuque, Johnson, Lee, Polk
Encephalitis, viral	0	3	9	
Erythema Infectiosum	0	880	262	
Gastroenteritis (GIV)	14	10806	11699	Black Hawk, Johnson
Giardiasis	79	242	215	Scattered
Hepatitis, A	4	82	32	Black Hawk, Linn
Hepatitis, B	8	90	65	Scattered
Hepatitis, Non A-B	4	23	20	Black Hawk, Scott
Hepatitis type unspecified	0	5	1	
Herpes Simplex	95	800	831	Scattered
Herpes Zoster	0	2	0	
Histoplasmosis	0	9	18	
Infectious mononucleosis	1	131	155	Monona
Influenza, lab confirmed	0	67	247	
Influenza-like illness (URI)	17	24702	71742	Scattered
Legionellosis	0	6	7	
Malaria	1	4	1	Polk
Meningitis aseptic	17	40	29	Scattered
bacterial	2	59	60	Johnson, Woodbury
meningococcal	0	3	11	
Mumps	14	385	32	Scattered
Pertussis	17	32	13	Dubuque, Franklin, Linn, Mitchell, Union
Rabies in animals	20	195	132	Scattered
Reye Syndrome	0	0	0	
Rheumatic Fever	0	2	6	
Rubella (German measles)	0	1	1	
Measles	0	0	134	
Salmonellosis	20	105	168	Scattered
Shigellosis	16	37	8	Scattered
Toxic Shock Syndrome	1	5	8	Page
Tuberculosis total ill	5	31	35	Scattered
bact. pos.	5	31	35	Scattered
Typhoid Fever	0	0	1	
Venereal diseases:				
Gonorrhea	212	1978	2576	Scattered
Chlamydia	285	2343	1596	Scattered
Syphilis	7	19	6	Scattered

Other Non-Reportable Diseases: Clonorchiasis — 2, Clinton; Lyme — 1, Dubuque; Rotavirus — 1, Polk; Trichuris Trichiura — 2, Polk; Ureaplasma Urealyticum — 1, Johnson.

About Iowa Physicians

Dr. Richard J. Bealka, Independence, is 1 of 7 recipients of the Commissioner's Certificate, the highest award given by the Iowa Department of Human Services. The Certificates are presented by Iowa Human Services Commissioner, Nancy A. Norman, to individuals who make outstanding contributions to meeting human service needs in Iowa. **Dr. Leroy R. Schlesselman** has joined the Bettendorf Family Clinic. Dr. Schlesselman received the M.D. degree and completed his family practice residency at the U. of I. College of Medicine. **Dr. Richard D. Hildebrand** recently began an internal medicine practice in Sioux City. Dr. Hildebrand received the M.D. degree at the University of Nebraska School of Medicine and completed his internal medicine residency at the University of Kansas Medical Center in Wichita, Kansas. Prior to locating in Sioux City, he practiced in Elmira, New York. **Dr. Herman Hein,** professor in the Department of Pediatrics at the U. of I. College of Medicine and director of the Statewide Perinatal Care Program, has been appointed to a national commission created by Congress to make recommendations on saving the lives of newborn babies. Dr. Hein will be 1 of 15 members of the National Commission to Prevent Infant Mortality, which will report to President Reagan and Congress within the next year. **Dr.**

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Gerald J. Nemmers, Washington, retired from medical practice July 1. Dr. Nemmers began medical practice in Washington in 1948. **Dr. John W. Scott,** Sioux City, has been named Woodbury County medical examiner.

The Clinton County Medical Society (CCMS) and **Dr. Robert G. German** have received awards from "Operation Pride, Inc.," a community betterment program which showcases positive news about the Clinton area. CCMS and Dr. German were cited for developing a program which provides annual school athletic physicals for the public/parochial school system, grades 7-12, in Clinton and surrounding areas. **Dr. Tim Nagel** has joined the Community Family Practice Clinic in Clarion. Dr. Nagel received the M.D. degree and completed his family practice residency at the U. of I. College of Medicine. **Dr. Mark A. Johnson** has joined the Atlantic Medical Center. Dr. Johnson received the M.D. degree at the U. of I. College of Medicine and served his family practice residency at Broadlawns Medical Center in Des Moines. **Dr. Samuel D. Porter,** retired Mason City surgeon, has been named vice president of medical affairs at St. Joseph Mercy Hospital in Mason City. In his new position, Dr. Porter will oversee quality issues such as development of a comprehensive and objective quality measurement system and other issues related to the medical staff of the hospital. **Dr. John C. Barker,** Eldridge, and **Dr. Stephen B. Sidwell,** Davenport, co-hosted the BIX 7 Sports Medicine Symposium held in Davenport in July. During the symposium, 15 local and national physicians, trainers and other sports professionals discussed current trends and issues in the field of sports medicine. In addition, Dr. Barker spoke on hyperthermia and exhaustion.

Dr. Joseph H. Spearing, Harlan, was elected to the board of directors of Midlands Emergency Medical Services (EMS) Council. **Dr. Robert E. Donlin,** Harlan, has retired from medical practice. Dr. Donlin began medical practice in Harlan in 1937. **Dr. David Fraser** has joined the Centerville Medical Clinic. Dr. Fraser received the M.D. degree at the University of Kansas School of Medicine in Lawrence, Kansas, and completed his family practice residency at Black Hawk Area Medical Education Foundation in Waterloo. **Dr. Jerry Rozeboom** joined the Des Moines Medical Group in July. Dr. Rozeboom received the M.D. degree at the U. of I. College of Medicine and completed his obstetrics and gynecology residency at the University of Utah in Salt Lake City, Utah. **Dr. Randy Hemann** has joined **Drs. Donald Trefz** and **Brent Brunsting** in family practice in Charles City. Dr. Hemann received the M.D. degree at the U. of I. College of Medicine and completed his family practice residency in Mason City.

Dr. Donald K. Miller has joined Manchester Family Medical Associates, P.C. Dr. Miller received the M.D. degree at the U. of I. College of Medicine and completed his family practice residency at Mercy/St. Luke's Hospital in Davenport. Prior to locating in Manchester, Dr. Miller practiced in Washington, Iowa. **Dr. Michael J. Niehaus** has joined Surgical Associates in Burlington. Dr. Niehaus received the M.D. degree at the U. of I. College of Medicine and completed his surgery residency at Iowa Methodist Medical Center in Des Moines. **Dr. Jeffrey R. Hallman** has joined **Dr. Juergen F. Holl** in the practice of radiology and nuclear medicine at Mercy Hospital in Davenport. Dr. Hallman received the M.D. degree at the University of Illinois School of Medicine in Rockford, Illinois and completed his radiology residency at Northeastern Ohio University College of Medicine in Rootstown, Ohio.

Deaths

Dr. Kenneth J. Judiesch, 65, Iowa City, died July 8 at Mercy Hospital in Iowa City. Dr. Judiesch received the M.D. degree at the U. of I. College of Medicine. A longtime Iowa City physician, he was a clinical associate professor in the Department of Family Practice at the U. of I.

Classified Advertising

CLASSIFIED ADVERTISING RATE — $2 per line, $20 minimum per insertion. NO CHARGE TO MEMBERS OF IOWA MEDICAL SOCIETY. Copy deadline — 1st of the month preceding publication.

FELLOWSHIP OPPORTUNITY — Two-year clinical adolescent medicine fellowship is being offered at the Iowa Methodist Medical Center, with the next available position starting in July, 1988. The core of the training will be centered around an innovative inpatient adolescent behavioral medicine service. Additional areas of training include sports medicine, gynecology, endocrinology and hospital administration. The fellow must be a graduate of an approved residency program (pediatrics, family practice, or internal medicine). The purpose of this fellowship is to prepare qualified individuals for a career in the stimulating field of clinical adolescent medicine. Interested candidates should contact: Donald E. Greydanus, M.D., F.A.A.P., F.S.A.M., Director, Adolescent Medicine Program, or E. F. Luckstead, M.D., F.A.A.P., Chairman, Department of Pediatrics, Iowa Methodist Medical Center, 1200 Pleasant, Des Moines, Iowa 50308. 515/283-6230.

TIRED OF THE DES MOINES RAT RACE? — A growing multispecialty clinic in Prairie du Chien, Wisconsin is looking for aggressive Family Practice and General Internists. We have an excellent 49-bed Community Hospital. We have excellent sports and living conditions. The school system is also well rated. Please contact Brenda Jones, Office Manager, Prairie Medicine, Ltd., Prairie du Chien, Wisconsin 53821 or 608/326-6402.

RADIOLOGIST — BOARD CERTIFIED/ELIGIBLE — Four Mayo Clinic trained radiologists have a position available in a hospital-based practice that includes angiography and other invasive procedures, diagnostic radiology, CT, US, nuclear medicine, MRI. Four years university training required. Liberal vacation and seminar time. Low buy-in and early full partnership. LOCUM TENENS assistance desired until a permanent associate is obtained. Send CV and three references with initial letter of inquiry to Box 2818, Waterloo, Iowa 50704.

INTERNAL MEDICINE SPECIALIST NEEDED — To join physician in Marshalltown, Iowa. Contact R. H. Kruse, M.D., Doctor's Park North, Marshalltown, Iowa 50158. 515/753-3373.

GENERAL SURGEON, FAMILY PRACTICE and INTERNAL MEDICINE SPECIALISTS — to join eight-doctor family practice clinic in Cloquet, Minnesota, a community of 12,000 (30,000 service area) located 20 minutes from Duluth-Superior. Clinic facility is located one block from modern, well equipped 77-bed hospital. Cloquet enjoys a stable economy (forest products). Additionally, our community is noted for its excellent school system. First year salary guarantee, paid malpractice, health and disability insurance, vacation and study time. Contact John Turonie, Administrator, Raiter Clinic, Ltd., 417 Skyline Blvd., Cloquet, Minnesota 55720. Telephone 218/879-1271.

FAMILY PHYSICIAN NEEDED — Immediate need for BC/BE Family Physician to join 2 established Family Physicians in private practice in N.W. Iowa community of 5,000. Modern clinic across the street from JCAH hospital. Excellent salary and fringe benefits with partnership opportunity. Locum tenens opportunity available also. Call collect 712/324-2511 or contact Sheldon Medical Clinic, 206 North 7th Avenue, Sheldon, Iowa 51201.

OBSTETRICIAN/GYNECOLOGIST — Marshfield Clinic is seeking a board certified or eligible obstetrician/gynecologist to join its expanding regional center in Chippewa Falls. Chippewa Falls is a community of 15,000 people located in beautiful west central Wisconsin with a wide range of recreational, educational, and cultural opportunities easily accessible. The clinic is adjacent to a 110-bed JCAH accredited hospital. Marshfield Clinic is a 250-physician, multi-specialty private group practice offering a very competitive salary and fringe benefit package. Send curriculum vitae and references to Bob Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or you may call collect at 715/387-5498.

GENERAL INTERNAL MEDICINE — Marshfield Clinic is seeking a board certified or eligible general internist to join its expanding regional center in Chippewa Falls. Chippewa Falls is a community of 15,000 people located in beautiful west central Wisconsin with a wide range of recreational, educational, and cultural opportunities easily accessible. The center currently includes three internists. The clinic is adjacent to a 110-bed JCAH accredited hospital. Marshfield Clinic is a 250-physician, multi-specialty private group practice offering a very competitive salary and fringe benefit package. Send curriculum vitae and reference to Bob Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, WI 54449 or you may call collect at 715/387-5498.

BE A "WINTER TEXAN" — Internist needed. Enjoy the warm, beautiful Rio Grande Valley while practicing internal medicine with an internist. Texas license essential. Salary, living accommodations and malpractice insurance. Send Curriculum Vitae to 104 South Bryan Road, Mission, Texas78572 or contact 512/585-2783 for more information.

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SEEKING DIRECTOR — Full-time and part-time physician for new 50-bed hospital emergency department in southeastern Iowa. Attractive hourly compensation and malpractice insurance provided. Benefit package available. Contact Emergency Consultants, Inc., 2240 South Airport Road, Room 43, Traverse City, Michigan 49684. 1/800/253-1795 or in Michigan 1/800/632-3496.

FAMILY PRACTICE, OB/GYN, GENERAL INTERNIST, ENT & PEDIATRICIAN — needed for two-hospital, historic river town of 20,000. Drawing area of approximately 60,000 with new 19,000 acre recreational lake. Unlimited potential. Contact Carol Neil, Physician Recruitment, 623 Broadway, Hannibal, MO 63401 or call 314/221-3107.

IMMEDIATE OPENING — Full-time BC/BE emergency physician in Sioux City, Iowa. Independent contract status. This is an excellent job opportunity with attractive hourly compensation. ACLS/ATLS certification required. If interested, send C.V., or contact Paul Berger, M.D., FACEP, Medical Director of Emergency Services, St. Luke's Regional Medical Center, 2720 Stone Park Blvd., Sioux City, Iowa 51104 or call 800/352-4660 in Iowa.

INTERNAL MEDICINE — Board certified or eligible to join 12 physician, expanding, multi-specialty practice in northern Wisconsin. Clinic adjoins JCAH hospital. Rural location with abundant outdoor recreational opportunities, small four year college. Excellent salary and benefits. Call collect 715/532-6651 or send curriculum vitae with names of references to John C. Smylie, Administrator, Marshfield Clinic — Ladysmith Center, 906 College Avenue West, Ladysmith, Wisconsin 54848.



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In the Public Interest

Organized Medicine's Solid Iowa Roots

"When the 25 Iowa practitioners of medicine met at Burlington, Iowa in June, 1850 for the purpose of organizing a state medical society, it was in response to a firm belief in the minds of a few broad-minded physicians, with a view to the future, that organized medicine was the only means of progress, and towards high educational standards, with greater benefits to the state and the people generally." Walter L. Bierring, M.D., 1908 IMS President and 1934 AMA President, from *One Hundred Years of Iowa Medicine.*

Dr. Bierring's statement in the 1950 publication commemorating the centenary of the Iowa Medicine Society exemplifies the loving respect for the profession and the concern for the public good which have been the hallmark of organized medicine in Iowa. Even a brief excursion into the history of Iowa medicine reveals the physicians most closely involved in the state medical society were also those involved in matters concerning their communities and state.

Historical records tell us physicians were among the first settlers in Iowa, with 26 of them coming here before 1840. These intrepid medical men weren't content just to care for their fellow settlers. They were also explorers, botanists, historians, farmers and shopkeepers. Physicians were key figures in the taming of the prairie. They helped organize counties, lay out cities and name streets and roads.

As time wore on, the same doctors who spearheaded organization of a state medical society (then called the Iowa State Medical and Chirurgical Society) also were the movers and shakers in Iowa's journey toward governmental organization and statehood. Dr. Enos Lowe of Burlington, first president of the state medical society and later a Civil War physician, was presiding officer of the convention that adopted the constitution under which Iowa attained statehood in 1846.

Historians even speculate a physician may have been the one to suggest the name "Iowa."

In 1876, a committee of physicians belonging to the Iowa State Medical Society drafted a bill creating the first State Board of Health. Since the Civil War, state society members have had an admirable record of military service. Over 700 Iowa physicians served in World War II alone.

Since the first state society was organized, Iowa physicians have been vigilant in striving for higher standards of medical practice, licensure and education. For over 137 years, they have remained closely involved in issues related to the health and welfare of Iowans.

It's a tradition that remains intact today. IMS members serve on task forces and committees appointed by the legislature to study medically-related matters. They help shape public policy on key health care issues. IMS members are also highly visible in their communities: they serve on school boards and city councils and spearhead fund-raising drives for various community betterment projects. In short, IMS members continue to make a difference inside and outside the medical world.

As Dr. Bierring so eloquently stated, the 25 physicians who gathered in Burlington in 1850 truly had "a view to the future."

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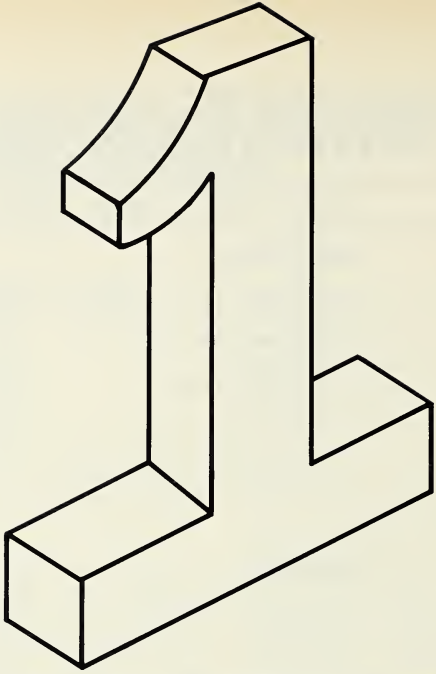
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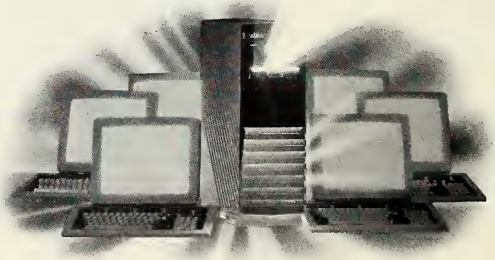


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Something To Think About

THIS ISSUE OF IOWA MEDICINE is devoted to medical ethics. One definition of the term "medical ethics" is "The principles of correct professional conduct with regard to the rights and duties of the physician himself, his patients and his fellow practitioners."

The key is to define **correct** professional conduct. What's right and what's wrong is not so simple to determine in all cases. The circumstances of the patient, the wishes of the family and the conscience of the doctor all have to be considered in making ethical decisions.

The listing of medical ethical issues the doctor and patient must be aware of grows lengthier all the time. Consider organ and tissue donor programs, living wills, death with dignity, the anatomic gift act, patient consent laws, surrogate parenthood and many more. Now we can add the AIDS problem to this weighty list. With the increasing number of AIDS victims, new ethical issues also arise. Issues such as confidentiality, who should be tested and who should be told of positive HIV results. Is it ethical for a physician to refuse to care for an AIDS patient?

I have no answers for these questions and no solutions for these complex dilemmas. Being a physician is not without risks; neither is life. We can only do the best we can with the tools and the circumstances we have been given. We can seek the advice and assistance of others, but we still must have our own code of ethics. We have our own conscience to answer to.

At the very least, this issue of IOWA MEDICINE will give you something to think about.

D Walter MD

Dennis J. Walter, M.D.
President

Medical Ethics: A Special Perspective

How much should quality of life and financial considerations affect treatment decisions? Who should resolve the complex ethical issues created by our increasing ability to prolong life? How should medical schools teach ethics? In this special* IOWA MEDICINE *interview, an emergency room physician who also holds a law degree discusses some of the most difficult ethical dilemmas and offers his opinion about how physicians and society should deal with them.

A HOSPITAL EMERGENCY ROOM can be the microcosmic stage where weighty ethical issues suddenly come to life. Critically-ill patients are brought there first and treatment decisions must be made. Factor in a ticking clock and you can have an ethical dilemma of behemoth proportions.

One might expect an emergency room physician to have a well-defined perspective on medical ethics, especially if that physician also happens to hold a law degree.

"Ethical issues are extremely frustrating because there just aren't any clear answers," says Robert Hegeman, M.D., an emergency room physician and associate in internal medicine with the University of Iowa Hospitals and Clinics. "I've thought a lot about ethical issues and lectured about them, but often I don't have better ideas than anyone else about what should be done with a given patient."

Dr. Hegeman, who earned his law degree after finishing his residency in 1980, says there was little formal ethics training when he was in school.

"Ethical issues were occasionally discussed during grand rounds but generally physicians would confront ethical issues as they arose with little formal training to rely on. The residents were out there taking care of patients and they were questioned about what should be done. Physicians 5 to 10 years out of school have seen so many situations they've developed their own standards, but I believe the lack of formal training in ethics could have led to some erroneous decisions by less experienced physicians."

Hypothetical Case 1

A young man institutionalized with Down's syndrome is brought to the emergency room. He has pneumonia, his blood pressure is dropping and he begins to arrest. Based on an uninformed perception of life in an institution, the resident decides not to actively resuscitate him.

"This case illustrates a general rule of mine. The more emergent the situation, the less the physician should rely on perceptions or statements that purport to limit life-preserving therapy," comments Dr. Hegeman. "If this patient had been living with his mother and developed renal failure and she said 'don't put him on dialysis, he'd be miserable,' I'd comply

with that. In the case of renal failure, there is often time to reflect on the ramifications of a decision that may cause a patient's death."

Dr. Hegeman says quality of life becomes an especially sensitive issue when the ethical decision involves expending large sums of money, time or effort to produce a marginal outcome for the patient.

Hypothetical Case 2

A patient with advanced Alzheimer's disease comes to the emergency room with possible acute appendicitis. The surgeon says the risk is too great the patient will die in surgery and does not operate.

"This is an example of a case where decisions may be affected by the quality of life factor. If that patient had any chance to get out and be completely healthy again, they'd operate. I'm not saying it is widespread or inappropriate, but decisions do get shaded by a physician's perception of the patient's quality of life. Physicians talk about these issues among themselves, but there is less discussion outside the profession because it might undercut patients' confidence to learn that there isn't anyone who has a clear answer to some of these questions."

Though he stresses that "100 physicians would have quite a few different opinions" about what should be done in any given situation, Dr. Hegeman relates there are definite limits imposed on a physician's discretion.



SPECIAL PERSPECTIVE — Robert J. Hegeman, M.D., an internal medicine associate with the University of Iowa College of Medicine, says it's important for physicians to be fully aware of legal limitations on their ethical discretion. Dr. Hegeman, who specializes in emergency medicine, also holds a law degree.

"There are limits imposed by standard medical practice. There are also legal limits, for example, the statute on life-sustaining procedures or the established law that says you can't invade someone's body without their consent.

"The more emergent the situation, the less the physician should rely on perceptions or statements that purport to limit life-saving therapy."

We need to do a better job of teaching physicians about the legal restrictions on their responsibilities and of what issues they should be cognizant."

Dr. Hegeman says there have been times when his knowledge of the law was invaluable in making decisions. He recalls an occasion when an attorney was brought to the emergency room after overdosing in an attempt to kill himself.

"He looked at me and said 'I deal with this all the time. If you touch me, I'll sue you.' Now, it's pretty clear to me that the state doesn't allow people to commit suicide. That

(Please turn to page 538)

MEDICAL ETHICS: A SPECIAL PERSPECTIVE

(Continued from page 537)

means I can do anything necessary to save his life, including invading his body."

Hypothetical Case 3

An elderly man is brought to the emergency room with a bleeding aneurysm and needs immediate surgery. He refuses consent, even though he is told he will die in less than 2 hours without it. His family attempts to persuade him but he continues to refuse, perhaps out of fear. The patient seems competent and appears to understand the implications of his refusal of treatment, but the surgeon decides because his blood pressure is 90/60 he is in shock and performs the surgery anyway.

"Everything I've been taught indicates the physician in this situation probably shouldn't have done the surgery. Was the low blood pressure impairing his decision-making ability? Did he really understand he would die without the surgery? Perhaps the surgeon did the right thing. This is the type of case you could discuss for weeks and never reach a clear decision. Perhaps preservation of life is more important than protecting the right of consent, at least in the emergency situation."

"We need to do a better job of teaching physicians about the legal limits on their responsibilities and of what issues they should be cognizant."

The cost of health care and the changing demands of third party payors have exacerbated already difficult ethical questions. Dr. Hegeman believes there should be more public discussion of how financial considerations affect treatment decisions.

"I might have a patient with chest pains. I don't believe it's a heart attack. I decide the risk it is a heart attack isn't great enough to justify the expense of 2 days in the intensive care unit. I'm making a probability estimate. In the past, the more physicians did, the more they got paid. Now it's going to be the opposite and there will be more risk-taking. Is that appropriate? Maybe from the public health perspective it is; but what about from the perspective of the individual patient?"

Dr. Hegeman is quick to point out that many knotty ethical questions are really public policy decisions which physicians should not have to make. One such issue is the use of Medicaid funds for organ transplants.

"So far, the transplant issue has been decided in favor of a few at the expense of many. These operations advance knowledge by leaps and bounds, but you have to wonder if it's appropriate when there are other people who can not get adequate basic care. When there aren't enough dollars to go around, society must weigh the worth of transplants versus basic medical care."

In addition to increasing his awareness of the legal and ethical factors operating in medical decisions, Dr. Hegeman's law training has influenced the way he reacts in some medical situations.

"I don't get upset when competent patients refuse standard medical care, providing they are adequately informed. For example, parents of a child who just had a febrile seizure might refuse a spinal tap the physician feels is necessary to rule out meningitis. I explain all the medical ramifications to the parents and try not to worry about it later on. If they are adequately informed, it's easier for me to accept that patients are largely responsible for their own care."

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Patients, Physicians Seek Minister's Ethical Advice

The increasing complexity of medical ethical questions has brought about a valuable alliance between physicians and religious leaders. In this interview with* IOWA MEDICINE, *a hospital chaplain involved in the teaching of ethics discusses common values shared by medicine and religion. He outlines his role as facilitator of communication between patients and physicians facing ethical dilemmas.

DEPENDING ON THE PARTICULAR ethical question, medicine and religion can be either "kissing cousins or fighting cousins," says George Paterson, Ph.D., associate professor of pastoral services for the University of Iowa College of Medicine.

"As they are practiced in Western society, medicine and religion share a common fund of values. These values include the dignity of the human person, the sanctity of life or the inviolability of the body," says Dr. Paterson. "However, physicians and clergy do sometimes disagree over what is best for an individual patient."

Patients 'Feistier'

Dr. Paterson has been with the U. of I. College of Medicine since 1970. Before that, he was campus minister for 9 years and a rural pastor for 6. He says contact between clergy and physicians on ethical issues has not always been common.

"I don't remember ever being consulted by anyone who had an ethical decision to make about medical care. Back then, people pretty much did what the doctors told them to do. There's definitely a change now. People are feistier than they used to be and they feel more responsible for their care."

Today, Dr. Paterson plays an important role in the teaching of ethics at the College of Medicine and the evaluation of ethical decisions made at University Hospitals. Each year, he coordinates a series of lecture presentations on behavior, law and ethics for a clinical medicine course required for sophomore medical students. Students and physicians often approach him for feedback on ethical issues.

Occasionally, Dr. Paterson is asked to participate in a morbidity/mortality conference which functions as a kind of ethical postmortem.

"We review cases that have ethical connotations and analyze how the patient was dealt with. We want to learn from our difficult cases because we know a similar situation will come along again," he relates.

Perhaps Dr. Paterson's most important role is establishing and facilitating communication between patients and physicians on ethical issues.

"Frequently, patients I visit have medical ethical issues they're wrestling with and want to discuss them. I don't advise patients on medical treatment, though I will sometimes



"KISSING COUSINS" — George W. Paterson, Ph.D., associate professor of pastoral services for the University of Iowa College of Medicine and Hospitals and Clinics, feels medicine and religion are "kissing cousins" because they share a common fund of ethical values. Dr. Paterson says today's patients are "feistier" than they once were and feel more responsible for their own treatment decisions.

support a patient who wants to go against a physician's recommendation. One area where there is occasional conflict is patient refusal of treatment. I can take either side of the argument."

Dr. Paterson says he doesn't think of himself as a patient advocate but admits, as a lay person in the medical world, he may be a little more likely to identify with the patient and family point of view.

Emerging Issues

Ironically, another issue arising more often is the patient's right to demand treatment, particularly experimental types of treatment. Dr. Paterson recalls one case involving a patient with a form of leukemia which is unresponsive to bone marrow transplants. The medical staff advised against the therapy. However, the patient demanded the treatment since there was no other option available.

"Traditionally, it's been the doctor who wants to go all out and do everything and the patient and family want to call a halt. Frequently now we're seeing that reversed — the patient and family want everything done even though it may be futile. The physician knows when a treatment would not be a wise use of medical resources or the chances of it helping are too slim to justify the rigors of the therapy. When does the physician have the right to say no?"

Though he is not a physician, Dr. Paterson understands the "fairly clear medical criteria" operating in some situations. He has no moral quarrel with treatment decisions based on whether a patient is a suitable candidate medically.

"However, I don't believe decisions should ever be based on the social value or usefulness of the patient. All persons are created equal and should have equal access to health care."

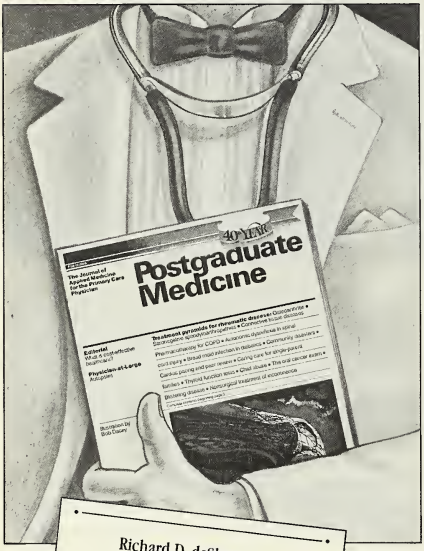
"Traditionally, it's been the doctor who wants to go all out and do everything and the patient and family want to call a halt. Frequently now we're seeing that reversed — the patient and family want everything done even though it may be futile."

Dr. Paterson says he would be "pretty uncomfortable" if America follows England's example of setting age limits on organ transplants.

"In England, you have national health services based on limited resources and they decided older people won't get transplants be-

(Please turn to page 542)

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PATIENTS, PHYSICIANS SEEK MINISTER'S ETHICAL ADVICE

(Continued from page 541)

cause they have less time to benefit from them. To me, they're saying older people don't count as much as younger people."

To support his argument against arbitrary age limits, Dr. Paterson cites bone marrow transplants done at University Hospitals.

"When we first started these transplants, nobody over 40 was considered to be a candidate because the experience was that people over that age did not respond favorably. Now, we occasionally have a 42 or 45-year-old person come in who is in excellent physical health and they overstep that boundary."

"I realize at some point money is a factor. Even if all medical care was funded by the government, you'd still have people making decisions about who got what."

Some Decisions Social Policy

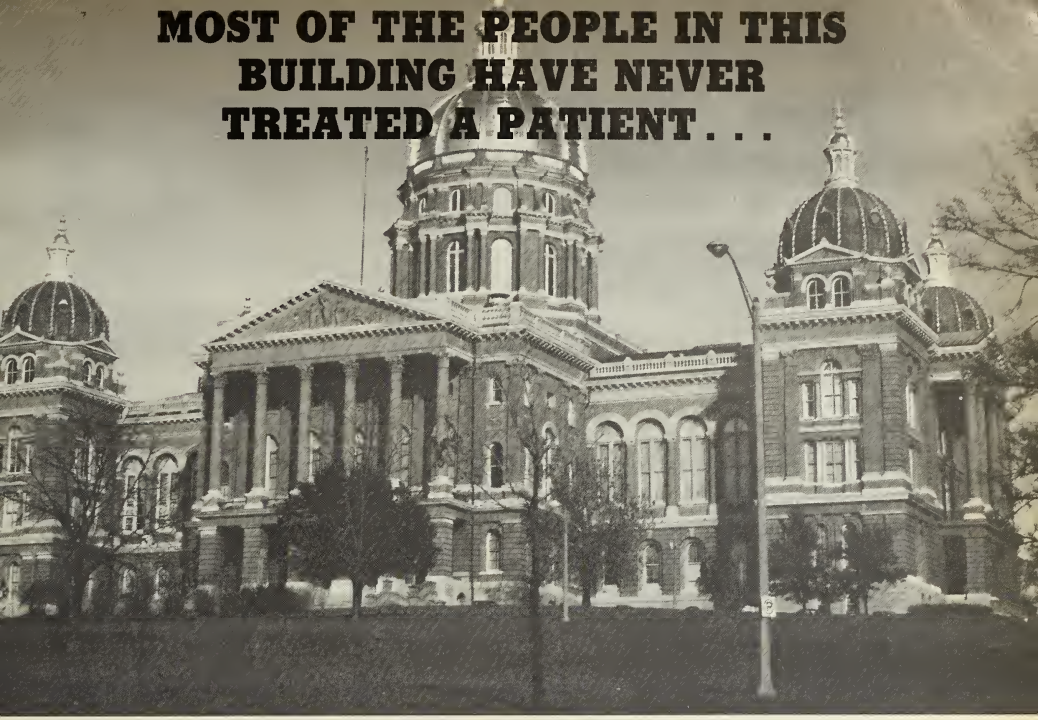
Dr. Paterson stresses that other equally important issues belong in the social rather than medical arena.

"How do we allocate scarce medical resources? Is it wise to invest large amounts of money in heart transplants? These are social planning and social policy decisions that shouldn't be made at the clinical level."

Though he understands the ramifications of limited health care resources, Dr. Paterson bemoans the fact money affects decisions about medical care.

"I realize at some point money is a factor. Even if all medical care was funded by the government, you'd still have people making decisions about who got what. There's never going to be enough to satisfy everybody who wants or needs something from the system."

Finally, Dr. Paterson predicts ethical dilemmas will increase due to physicians growing ability to extend life for indefinite periods of time.



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Increased Emphasis On Ethics At U of I

As medical ethical dilemmas become increasingly complex, future physicians need more preparation to make the ethical decisions they are sure to face in their practices. Physicians in the University of Iowa College of Medicine discuss a new medical ethics course available to sophomore medical students and outline other efforts they would like to see in the area of ethics education.

SHOULD PATIENTS WITH INCURABLE *cancer be given narcotics for full relief of their pain even if they become addicted?*

If a child weighs less than 600 grams at birth, should resuscitative or therapeutic efforts be undertaken?

Is abortion justified if the fetus is male and the mother is a known carrier of hemophilia?

Should the cost of heart transplants be covered by private and governmental health insurance programs?

Ethical Dilemma: A situation in which weighty moral arguments exist to justify at least two opposing courses of action.

Half the battle for sophomore students in a new medical ethics course at the University of Iowa College of Medicine is accepting that compelling ethical questions such as these have no clearly "right" answers. This accomplished, students must then develop their abilities to identify the issues, analyze the relative weight of the values in conflict and make a decision based on morally justifiable criteria.

It's obvious that teaching medical students how to deal with ethical dilemmas is a challenging assignment; but several physicians in the U of I College of Medicine believe it's something that needs expanded emphasis.

"This is the second year for the medical ethics class," says Richard Caplan, M.D., course instructor and associate dean for continuing education in the College of Medicine. "Before that, there was little formal structure in the College of Medicine for the teaching of medical ethics."

Dr. Caplan believes ethical issues are so important he would like to see the course be mandatory, though fitting another required course into the already burdensome medical student schedule would be difficult.

Charles Driscoll, M.D., professor and head of the College of Medicine's Department of Family Practice, agrees the teaching of ethics needs more attention.

"I think every student should be exposed to a medical ethics course," he comments. "There is a fair amount of ethics teaching in the present curriculum, but it's rather loose and disjointed."

Freshmen medical students take a course called human dimensions in medicine which sometimes entails discussion of ethical issues, says Dr. Driscoll. Behavior, law and ethics are



ETHICAL ISSUES ON THE TABLE — A medical ethics course now available to sophomores in the U. of I. College of Medicine is the beginning of efforts to increase ethics instruction. Seated in front of the blackboard is course instructor Richard Caplan, M.D., associate dean for continuing education in the College of Medicine.

components of a required sophomore course in clinical medicine.

"However, in the third year of medical school, any formal ethics teaching is abandoned except for bedside teaching on the wards," adds Dr. Driscoll.

As part of the increased emphasis on ethics, the College of Medicine plans to hire an ethicist who will be a member of the teaching staff. According to John Eckstein, M.D., dean of the College of Medicine, the ethicist will provide leadership in efforts to formalize ethics education.

"The University supported our request for funds to establish a more formal and encompassing program on ethics. We need to do much more in this area because ethical issues change and develop so rapidly. Medical students need stronger exposure to people who think in depth about these matters," he says.

The proposed ethics education program will be reviewed by the College of Medicine Medical Education Committee, and Dr. Eckstein hopes the program will take form during the present academic year. He relates that the College of Medicine is interested in developing an ethics program that "pervades all health colleges."

"We hope the entire environment is affected by the presence and the leadership of the ethicist. We would like to raise everyone's consciousness regarding ethics issues," Dr. Eckstein comments.

An Ethical Dilemma

The small class of future physicians is seated around a table arranged to foster meaningful discussion. Carol Aschenbrener, M.D., associate dean of student affairs and guest discussion leader for the day, outlines a thought-provoking ethical dilemma: A wealthy Mid-easterner offers a $3 million donation to any American hospital that will move him to the top of the kidney transplant list. The discussion is intense, the opinions diverse. One student points to the good things the $3 million donation could accomplish. Another wonders about the number of

(Please turn to page 546)

INCREASED EMPHASIS ON ETHICS AT U OF I

(Continued from page 545)

Americans who badly need transplanted kidneys. Yet another student — an ex-social worker — bemoans the fact that money has to be even a minor consideration in ethical decisions. "We're not attempting to teach right or wrong," Dr. Aschenbrener tells the class, "but you ought to have some generally-recognized system of principles to fall back on when you make ethical decisions."

"Ethics education is a lifelong process, a way of thinking. It's difficult for physicians to fully appreciate the issues until they've actually been at the bedside."

"Some students come to this course thinking they will find the right answers, that they'll learn the right thing to do in these situations," comments Dr. Caplan. "Ethical problems — by their nature — don't lend themselves to neat, crisp solutions. This can be a difficult thing for physicians to accept. Physicians are scientists — many have no tolerance for ambiguity."

"All physicians need to be concerned with ethical issues because they will deal with them on some level," states Dr. Aschenbrener. "We want to do our part to prepare students to deal with ethics. However, this is only the beginning. Ethics education is a lifelong process, a way of thinking. It's difficult for physicians to fully appreciate the issues until they've actually been at the bedside."

"Ethical problems — by their nature — don't lend themselves to neat, crisp solutions. This can be a difficult thing for physicians to accept. Physicians are scientists — many have no tolerance for ambiguity."

Dr. Driscoll also believes students and physicians already in practice should devote closer attention to ethical issues.

"Medical journals and other publications often carry articles dealing with medical ethics. Careful reading of these articles is an excellent way to prepare yourself to make these decisions. Perhaps exposure to ethical issues should become important to maintaining hospital privileges," he comments.

Finally, Dr. Driscoll characterizes the unique nature of ethical decisions in this way: "I believe medicine is a ministry that transcends pure science. Every ethical decision has scientific aspects, behavioral aspects and spiritual aspects. Physicians have to learn how to operate in all these arenas."

Letter to the Editor

Teen Pregnancy Resources

Congratulations on your August 1987 issue of *Iowa Medicine*. The complex topic of adolescent pregnancy in Iowa was well covered. In that journal, you asked for information about additional agencies and resources available in Iowa.

I would like to share with you information about Mother & Infant Care Inc. in Cedar Rapids. This agency operates a crisis center for pregnancy testing by the name "Aid to Women." The organization also operates another arm called "Mother and Infant Care Educational Resources, Inc." This division provides education to students of the area regarding pregnancy, preborn human development, sexuality issues, abortion techniques and consequences. The excellent curriculum which is being taught by this group is "Sex Respect" by Coleen Kelley Mast. If you would like further information on any of the above, please contact me or Ruth Anne Eccles, R.N. The telephone number of the pregnancy testing center is (319) 364-8967. The mailing address of Mother & Infant Care, Inc. is P.O. Box 464, Marion, IA 52302-0464. — *Mary Anne Nelson, M.D., Cedar Rapids, Iowa.*

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Keflet is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-sensitive patients.

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Brief Summary. Consult the package literature for prescribing information. Indications and Usage: Keflet® Tablets (cephalexin, Dista) are indicated for the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Respiratory tract infections caused by *Streptococcus pneumoniae* and group A β-hemolytic streptococci (Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. Keflet is generally effective in the eradication of streptococci from the nasopharynx; however, substantial data establishing the efficacy of Keflet in the subsequent prevention of rheumatic fever are not available at present.)

Otitis media due to *S pneumoniae, Haemophilus influenzae,* staphylococci, streptococci, and *Neisseria catarrhalis*

Skin and skin structure infections caused by staphylococci and/or streptococci

Bone infections caused by staphylococci and/or *Proteus mirabilis*

Genitourinary tract infections, including acute prostatitis, caused by *Escherichia coli, P mirabilis,* and *Klebsiella* sp.

Note—Culture and susceptibility tests should be initiated prior to and during therapy. Renal function studies should be performed when indicated.

Contraindication: Keflet is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings: BEFORE CEPHALEXIN THERAPY IS INSTITUTED, CAREFUL INQUIRY SHOULD BE MADE CONCERNING PREVIOUS HYPERSENSITIVITY REACTIONS TO CEPHALOSPORINS AND PENICILLIN. CEPHALOSPORIN C DERIVATIVES SHOULD BE GIVEN CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS.

SERIOUS ACUTE HYPERSENSITIVITY REACTIONS MAY REQUIRE EPINEPHRINE AND OTHER EMERGENCY MEASURES.

There is some clinical and laboratory evidence of partial cross-allergenicity of the penicillins and the cephalosporins. Patients have been reported to have had severe reactions (including anaphylaxis) to both drugs.

Any patient who has demonstrated some form of allergy, particularly to drugs, should receive antibiotics cautiously. No exception should be made with regard to Keflet.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics (including macrolides, semisynthetic penicillins, and cephalosporins); therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening.

Treatment with broad-spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis.

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, management should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte, and protein supplementation. When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic-associated pseudomembranous colitis produced by *C difficile*. Other causes of colitis should be ruled out.

Usage in Pregnancy—Safety of this product for use during pregnancy has not been established.

Precautions: *General*—Patients should be followed carefully so that any side effects or unusual manifestations of drug idiosyncrasy may be detected. If an allergic reaction to Keflet occurs, the drug should be discontinued and the patient treated with the usual agents (eg, epinephrine or other pressor amines, antihistamines, or corticosteroids).

Prolonged use of Keflet may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug.

Keflet should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

Indicated surgical procedures should be performed in conjunction with antibiotic therapy.

As a result of administration of Keflet, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinitest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP, Lilly).

Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

Usage in Pregnancy—Pregnancy Category B—The daily oral administration of cephalexin to rats in doses of 250 or 500 mg/kg prior to and during pregnancy, or to rats and mice during the period of organogenesis only, had no adverse effect on fertility, fetal viability, fetal weight, or litter size. Note that the safety of cephalexin during pregnancy in humans has not been established.

Cephalexin showed no enhanced toxicity in weanling and newborn rats as compared with adult animals. Nevertheless, because the studies in humans cannot rule out the possibility of harm, Keflet should be used during pregnancy only if clearly needed.

Nursing Mothers—The excretion of cephalexin in the milk increased up to 4 hours after a 500-mg dose; the drug reached a maximum level of 4 μg/mL, then decreased gradually, and had disappeared 8 hours after administration. Caution should be exercised when Keflet is administered to a nursing woman.

Adverse Reactions: *Gastrointestinal*—Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment. Nausea and vomiting have been reported rarely. The most frequent side effect has been diarrhea. It was very rarely severe enough to warrant cessation of therapy. Dyspepsia and abdominal pain have also occurred. As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.

Hypersensitivity—Allergic reactions in the form of rash, urticaria, angioedema, and, rarely, erythema multiforme, Stevens-Johnson Syndrome, or toxic epidermal necrolysis have been observed. These reactions usually subsided upon discontinuation of the drug. Anaphylaxis has also been reported.

Other reactions have included genital and anal pruritus, genital moniliasis, vaginitis and vaginal discharge, dizziness, fatigue, and headache. Reversible interstitial nephritis has been reported rarely. Eosinophilia, neutropenia, thrombocytopenia, and slight elevations in SGOT and SGPT have been reported.

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Help free your patients from recurrences.

Daily therapy

Coping with genital herpes is rarely easy. For some, the worst part is the pain and discomfort of frequent attacks—month after month, year after year. For others, the emotional burden presents a more difficult problem, leading to social isolation, anxiety, and diminished self-esteem.

Prevent or reduce recurrences

Although your patients have to live with herpes, they shouldn't have to suffer. Daily therapy with ZOVIRAX CAPSULES can help free them from the cycle of recurrent genital herpes. For many, one capsule three times a day can suppress recurrences completely while on therapy.

Generally well tolerated

Daily therapy with ZOVIRAX CAPSULES is generally well tolerated. The most frequent adverse reactions reported during clinical trials were headache, diarrhea, nausea/vomiting, vertigo, and arthralgia.

The physical and emotional difficulties posed by genital herpes are unique for each patient. The frequency and severity of recurrent episodes, as well as the emotional impact of the disease, should be considered when selecting daily therapy with ZOVIRAX CAPSULES.

Please see brief summary of prescribing information on next page.



Prevent recurrences month after month*

ZOVIRAX® (acyclovir) CAPSULES

Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psycho-social difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: *Teratogenic Effects:* Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤10 ml/min/1.73/m².

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Questions and Answers



Hospital Ethics Committees

As medicine's ability to prolong human life increases, so does the number of difficult ethical issues. Many Iowa hospitals are responding by creating ethics committees. The author, administrator of Jennie Edmundson Hospital in Council Bluffs, discusses the composition and function of hospital ethics committees.

What factors led to formation of ethics committees in Iowa hospitals? How many hospitals have such committees?

Medicine's increasing ability to maintain human life and bodily functions has raised many questions regarding ongoing care and treatment of terminally and seriously ill patients. The Karen Ann Quinlan case, "Baby Doe" litigation and other legal cases have pointed up the need for multi-disciplinary groups which advise and consult regarding ethical decisions and hospital policies.

A recent survey showed 14 of 76 responding Iowa hospitals have formal ethics committees. Many other Iowa hospitals are considering forming such committees. I would expect the number of ethics committees to rapidly increase in the near future.

What are the functions of hospital ethics committees?

The primary function of the ethics committees varies from hospital to hospital. Generally, they focus on education and development of policies and guidelines. They also do prospective and retrospective review of ethical issues related to clinical treatment. The overall role of the committees is to assist and advise physicians, other health professionals, patients and their families in making difficult ethical decisions regarding care and treatment.

Who serves on these committees?

The composition of the committees is usually multi-disciplinary. They include physicians, administrators, nurses, social workers, clergy, trustees, attorneys and ethicists when they are available. In the survey cited above, ethicists were reported on 3 of the committees. Five committees have patient advocates or representatives.

What issues are put before hospital ethics committees?

Issues faced frequently by hospital ethics committees include informed consent, patient refusal of treatment, "do not resuscitate" orders, withholding or withdrawing life support, living will statutes, surrogate decision makers, allocation and use of intensive care beds, new services and technology and patient rights issues such as confidentiality and privacy.

A 1985 report of the American Hospital Association stated ethics committees should provide a forum for discussion of issues and cases, educate, analyze policies and protocols and help build rapport among medical disciplines. The report stressed that in the current complex health care environment, the most important function of the ethics committee is to educate.

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Prospects For Fetal Treatment

ROGER A. WILLIAMSON, M.D.,
KEVEN C. PRINGLE, M.B., Ch.B., and
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Iowa City, Iowa

Fetology is an expanding and increasingly sophisticated area of medicine. This article discusses fetal abnormalities which are potentially treatable and describes innovative medical therapies and surgical techniques.

AN INTERDISCIPLINARY TEAM has been formed at University Hospitals to evaluate pregnancies for which fetal treatment may be appropriate. This team has been active in contributing natural history cases of fetal hydrocephalus and obstructive uropathy to an international registry to compare with treated cases.[1] A minority of fetal disorders can be considered for such therapy, but efforts to assess the abnormal fetus instruct us about abnormal fetal development and help refine the criteria for selection of cases for treatment.

This report outlines fetal abnormalities which are potential candidates for treatment and describes newer methods to evaluate the fetus. Readers are referred to recent reviews for more details.[2, 3, 4]

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Medical Therapy

It is possible to modify the biochemical abnormalities of several rare disorders prior to birth.[5] Maternal administration of vitamin B_{12} and biotin for prenatally diagnosed cases of B_{12}-responsive methylmalonic acidemia and biotin-responsive multiple carboxylase deficiency, respectively, may reduce the immediate postnatal consequences of acidosis in these disorders. The feasibility of maternal administration of steroids to reduce the virilization of external genitalia in female fetuses of parents who are heterozygous carriers for 21-hydroxylase deficient congenital adrenal hyperplasia has been demonstrated.[5]

Another example of fetal medical therapy is the suggestion transplacental passage of certain cardiac drugs, including Digoxin, may cardiovert a fetal supraventricular tachycardia producing fetal congestive heart failure.[6] Even more indirect fetal treatment is that for mothers with phenylketonuria. Preconceptual dietary lowering of phenylalanine levels is critical to improvement in the potentially devastating fetal effects of untreated maternal PKU.[7]

Prenatal medical treatment may reduce the risk of other disorders in a structurally abnormal fetus. Treatments include strict metabolic control of the pregnancy complicated by insulin-dependent diabetes mellitus. While not proven, the possibility of decreasing the risk

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PROSPECTS FOR FETAL TREATMENT

(Continued from page 551)

for recurrence of a neural tube defect by periconceptual vitamin administration has been studied.[8] The results of this treatment are still not conclusive.

Surgical Intervention

Three anomalies are thought to be candidates for consideration of surgical treatment; fetal hydrocephalus, obstructive uropathies and diaphragmatic hernia. Development of predictive selection criteria for treatment of these conditions is exceedingly difficult.

Congenital hydrocephalus is heterogenous in causation.[9, 10] Our evaluation of cases indicated even with careful ultrasonography to detect other anomalies and an amniocentesis for a fetal karyotype and alpha-fetoprotein determination, there would be a significant number of cases for which a shunting procedure would apparently be a valid undertaking. For a significant number, the treatment outcome may have been severe neurologic impairment or death from an unrecognized malformation.[9] A similar conclusion has been reached after analysis of 41 cases of hydrocephalus treated by catheter shunts from 1982 to 1985.[1] Treatment methods and case selection will probably improve. This may alter the current dismal prospects for intrauterine treatment of this condition. However, there are no criteria to accurately predict the long-term outcome of term neonates with hydrocephalus. Thus, the chances of such a prediction for the fetus, in the absence of a positive family history, must be slim.

The fetus with an obstructive uropathy is less likely than the fetus with hydrocephalus to have associated anomalies, but incidence of other defects is significant.[11] As with hydrocephalus, an exhaustive evaluation must be undertaken, including assessment of renal function, when deciding which fetus may benefit from a shunting procedure.[12] Even in cases where a good outcome from treatment might be predicted, treatment failures have resulted.[13]

In contrast to treatment for hydrocephalus, there has been more optimism regarding this treatment, e.g., the potential for reversing or preventing renal dysplasia or pulmonary hypoplasia. Of 73 treated cases reported to the International Registry, there were 30 survivors.[1] Most survivors were doing relatively well at follow-up. For these cases, treatment efficacy is suggested but not proven. Of the 29 cases from this series that came to delivery and died after birth, 27 died of "pulmonary hypoplasia." This reflects the fact fetal urine makes up the bulk of the amniotic fluid volume after 15-18 weeks gestation. Lack of amniotic fluid (oligohydramnios) reduces fetal breathing movements. This prevents the normal development of the lung. A baby with the Potter syndrome (bilateral renal agenesis) dies of respiratory failure days before death from absent kidneys would have occurred.

The impetus to treat the fetus with diaphragmatic hernia prenatally is the high degree of lethality associated with this condition. In animal models the pulmonary hypoplasia caused by herniated bowel is considerably improved by intrauterine repair of the diaphragmatic defect.[14, 15] This would obviously require hysterotomy and would be contemplated only in exceptional circumstances.

Other Potential Interventions

Either isolated abdominal or pleural collections of fluid could theoretically compress the developing lung and impede pulmonary development. Treatment for these conditions has been performed in several single case reports, as in a recent example of a fetus with bilateral hydrothoraces.[16] As with all other intrauterine interventions, even with intact survivors, treatment may or may not have been instrumental in the outcome.

Nonimmune hydrops (NIH) has many causes, though in many cases an underlying etiology is not discerned. A few treatments have been devised. A bradycardic fetus with congestive heart failure manifesting as NIH has been temporarily treated by insertion of a pacemaker into the right ventricular wall.[17] A fetus with severe NIH secondary to pulmonary extralobar sequestration evaluated in Iowa City has been palliated by catheter insertion into the left hemithorax.[18] A fetus with ultrasound evidence of NIH was found by cord

blood sample to have unexplained anemia and was successfully treated by transfusion through the umbilical cord.[19]

Treatment for the fetus with Rh disease, the model for intrauterine treatment, has evolved. Better definition of fetal status has been afforded by umbilical blood hemoglobin levels.[20] More predictable treatment is possible when one has access to the umbilical cord for transfusion.[21] This route would provide more predictable bone marrow population of stem cells than intraperitoneal deposition for the fetus who may, in the future, benefit from stem cell transplantation.[22]

Evaluating The Fetus

As medical scrutiny of the fetus increases, so does the information we learn about the developing conceptus and the causes of maldevelopment. Our concepts of fetal abnormalities have mostly been those shaped by published postnatal series and extrapolated to the fetus. These series are often biased by exclusions, e.g., intrauterine fetal deaths, stillborns, babies selected for nontreatment or nontransfer for a variety of reasons, etc.

Several lines of evidence suggest the fetus ascertained to have an anomaly represents a different disease spectrum than we have believed. For instance, we have obtained a prenatal karyotype when ultrasound demonstrates a significant fetal anomaly(ies). Of 57 anomalous fetuses so evaluated, 32% have a chromosome abnormality, a surprisingly high figure.[23] Knowledge of the fetal chromosome constitution is essential in the minority of cases in which prenatal surgical therapy is a consideration. It has proven helpful for counseling and pregnancy management. Many of these karyotypes have been obtained from fetal blood which permits a rapid karyotype. Fetal blood sampling under these circumstances allows assessment of possible intrauterine infection and certain hematologic parameters.

Other newer modalities for evaluating the fetus include M-mode echocardiography and doppler studies. Congenital heart disease constitutes the largest numerical category of birth defects. Increasing ability to detect structural cardiac defects will add much to a thorough fetal evaluation.

Conclusion

Fetology is a relatively new, expanding and increasingly sophisticated area of medicine.[23] Initial enthusiasm for some treatments such as shunting for fetal hydrocephalus has been tempered by sobering results from the early experience. This is to be expected and has been the pattern for other innovative undertakings in medicine. It does not seem unreasonable to anticipate improvements in methods of diagnosis and treatment modalities.

The authors wish to thank the Sandoz Company for their generous support in helping to organize the Fetal Treatment Team.

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Organ Donation in Perspective

KELLEY K. KOCH, R.N., M.S.
Des Moines, Iowa

As organ transplantation becomes more common, transplant centers across the country face a critical shortage of donor organs. The author discusses the sensitive issue of discussing organ donation with family members of brain dead patients.

ORGAN DONATION AND TRANSPLANTATION are receiving much attention in the media, medical literature and on professional speaking circuits. With continued refinement of transplantation, a critical theme begins to surface in nearly every aspect of this advanced medical technology — the critical shortage of donor organs.

The number of organ transplant centers in this country is rapidly increasing.[1] As technical aspects of the procedures are mastered and patient management becomes better understood and standardized, it is not surprising diffusion of this technology is taking place. However, the shortage of organs continues to plague transplant centers. Approximately 8,000 persons are awaiting a cadaveric kidney, over 100 persons are awaiting a donor heart, 300 await a liver, 800 await a pancreas, over 20 await heart-lung and some 4,000 await a cornea.[2]

The author is transplant coordinator at Mercy Hospital Medical Center in Des Moines.

With establishment of a national system of organ sharing which coordinates organ allocation and distribution, the organ shortage has lessened.[1] However, there continues to be a severe shortage beyond the capabilities of even the most advanced organ sharing network. Resolution of this problem can be traced not just to the organ sharing network system or the number of potential donors, but also to the simple act of requesting organ donation from families of brain dead patients.[3, 4, 6, 7]

There is never a good time to approach a family about the sensitive issue of organ donation. The question of when to approach the family of a potential organ donor is the most crucial factor in gaining consent. Experience indicates families who have not accepted the fact their loved one is brain dead will not be able to make a decision regarding donation.[7, 8] Acceptance of the death is an absolute prerequisite to approaching a family for consent.[7, 8]

Sudden catastrophic illness or injury to a previously healthy loved one is a very stressful situation for the donor family. Since potential donors are generally young and previously healthy individuals, the family faces a tragic, senseless loss. A critical factor in obtaining consent is understanding the family situation and dynamics occurring at the time. First, the family's stage of grief should be accurately assessed. Second, the socioeconomic, religious and ethnic background of the family should be analyzed. The legal next of kin and the family member usually responsible for family decisions should be identified. Consideration should be given to the family's understanding of brain death. Patience, understanding, sympathy and empathy from the person requesting consent are essential to a positive outcome.[3, 5, 7, 8, 9]

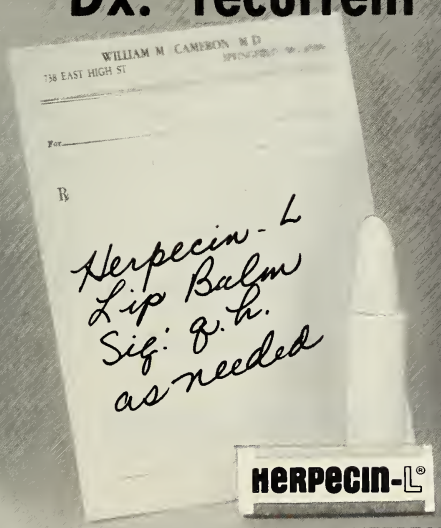
In dealing with the family of a potential organ donor, it is helpful for the medical staff to stress the improved quality of life for recipients. Many families have looked on organ and tissue donation as a positive aspect to an otherwise painful situation. The feeling something good can be salvaged from a senseless loss can be very comforting to the family.

Patients and families will continue to pose questions to health professionals regarding their rights as health care consumers and their rights as organ and tissue donors after their lives have ended. Health professionals need to be aware of their own feelings, comfort levels and knowledge regarding organ and tissue donation before approaching patients. The question of organ donation will arise — who poses it (the family or the health professional) is a question that bears watching.

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Marion E. Alberts, M.D.

The Editor Comments



Genesis to Exodus

MANY MEDICAL DECISIONS have become very difficult, requiring more caution and greater skill. I refer not to the complexities of diagnosis and management, but to the ethics involved in the decisions. Rapid changes in the complexities of medicine, often associated with liability fears, have placed physicians in positions of making hard moral decisions. Such decisions are quite new to older physicians because medicine of the past did not have the many options of today. Many forces are brought to bear upon medical decisions. These forces involve medical, legal, economic, psychologic and family perspectives. The patient becomes the final objective of all these decisions whether or not he is aware of them.

A recent television movie, *Baby Girl Scott*, depicted the dilemma of medical care to a tiny prematurely-born infant. Respiratory failure, pneumothorax, intracranial hemorrhage, fluid and electrolyte balance, with all the attendant modalities of care became an ethical problem. The physicians and the parents were trapped. Ethics, economics, interpersonal relationships, and all the ramifications in the "right to die" concept were dramatically portrayed in a social sense. A "no win" aura pervaded the life drama. It is not fiction; the care of such tiny infants is a daily decision-producing dilemma. Baby Doe legislation and mandates enter the picture. "Rights" groups have their concepts of right and wrong. Physicians bolstered by new technology have their own decisions to make. Ethics enters the arena. Legal complications cast dark shadows over the entire scene.

Later in life a similar drama of decision-making takes center stage. An article in the Southern Medical Journal, December 1986, addresses the "Ethics, technology and the high cost of dying." The article compares the various options which could be presented to one with terminal cancer.

The dying person must be helped to choose the preferred treatment and achieve an emotionally satisfying death. A number of factors are barriers to achieving death with dignity, including lack of social support and the difficulty in facing and talking about death. The consensus of the forum was that the emotional aspects and the communication problems involved in care for the terminally ill caused more concern than the legal and ethical issues. An enlightening comment in the discussion came from a law professor who declared the courts are really the worst forum for medical decisions.

In the interim between birth and death, (truly we begin to die at the moment of birth) there are numerous incidents which challenge physicians in the area of bioethics. Physicians of the past felt comfortable making decisions in the interest of their patients. Now things that were once thought medical are not solely medical. Physicians are willing to have an ethics committee adjudicate; in the past the physician, the patient and family made the decisions. Ongoing seminars and training courses in bioethics are being promulgated. Moral philosophy and legal ramifications of medical decision-making are exceedingly complex. The practicing physician should welcome consultation and assistance in such matters. This issue of IOWA MEDICINE alludes to this theme. — M.E.A.

Richard M. Caplan, M.D.

CME Notebook



Placebos, Humane Medicine and the Mona Lisa

A NEW BOOK (*Doctors, Patients and Placebos,* by Howard Spiro, M.D., Yale University Press, 1986) will interest you. At least, it did me. Dr. Spiro, a gastroenterologist at Yale, for years has written clearly, persuasively, with a fresh and critical look at many aspects of medical work. Because I've always enjoyed his articles and editorials, the new book attracted me, especially since I'd been prompted to think about placebos and to feel discomfited ever since the appearance of *Lying* by Sissela Bok. A medical ethicist, she there argues that the conventionally practiced use of placebos (sugar pills, B_{12} shots for patients without pernicious anemia, injections of sterile saline for pain relief, etc.) is a form of lying to patients, and such deception has no ethical justification.

Dr. Spiro now fully addresses the question of placebos. When you're done reading, you know the matter contains far more than you guessed. The book attempts much beyond providing a surfeit of discussion about placebos. It speaks wisely of many matters that lie outside conventional biomedical science, but in my view, lie at the heart of the patient-doctor relationship. One of these issues is the dominance, detrimentally so, of *vision* over *hearing* in today's practice style. By that Spiro means that although doctors may look at the patient, they more eagerly look at numbers on a laboratory printout, at words on reports from radiologists, pathologists or other consultants, or at the burgeoning splendor of images brought us through x-rays and computers, and other amazing new techniques of "seeing" the interior of the body. We can even watch metabolic and pathophysiologic orgies in living color on a computer screen. Our many useful visual metaphors ("I can see through that argument," "my vision of the future," "my crystal ball can't show me your prognosis") have even obliterated many proper ones. For example, you may hear a CB radio voice say "I read you," or the totally inappropriate — unless perhaps in an acoustics laboratory — "I see what you're saying."

Dr. Spiro asserts that we physicians aren't spending enough time listening to the patient. Osler and others have long admonished, "If you will just listen to the patient, he will tell you what's wrong." If we use our ears, says Spiro, we will come to know the patient, and in that way, the *illness* as well. Our eyes are better, perhaps, at helping us know the patient's *disease*, a pathophysiologic circumstance that lacks much of meaning, reaction, response, pain, and suffering. Illness includes the *whole* patient and likely the patient's family, friends, co-workers, even community or nation. All this is another way to look at wholism, at the "biopsychosocial model" of George Engel, a model that considers individuals and groups of them in contrast to the far more limited "biomedical model" that looks only at ever smaller, more mechanistic components of organs, cells, genes, enzymes, atoms, or subatomic units. As I read Spiro's contention, I wonder whether I, from a highly "visual" dis-

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cipline (dermatology), am not at special risk, or even blatantly guilty, of using my eyes more than my ears. If so, maybe I fail to engage in the person-to-person conversation of the existential "I-Thou" encounter that some argue is crucial to the true healer. (Yes, *healer*, not *body mechanic*.)

But is Spiro right? The question somehow brought to mind the Mona Lisa. My involvement with her is visual, and to accept Spiro, I therefore don't really know her. And of course her curious "distance" has been noticed for centuries. Why is she such an elusive mystery? Perhaps because we know her only by sight. Although a smile, a gaze, or body language can indeed reveal a great deal, her lack of voice to *tell* us of herself means we shall never really know her. A paradox, she helps me understand what Spiro is saying. Although he "speaks" to me *visually* via words on a page which I absorb through my sense of sight, yet he conveys meaning largely as a *voice*. Words and the ideas they bring thus live in the world of both sight and sound. Then I remember the delightful Mona Lisa poem by the eminent physician-poet, John Stone, whose words speak aloud and manage to inform me better of the Mona Lisa:

* * *

It is not what she did
at 10 o'clock
last evening

accounts for the smile

It is
that she plans
to do it again

tonight.

* * *

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Drug Therapy Review

J. E. KASIK, M.D., Editor

Drugs and TB

THOSE WHO THINK the world is going to hell should compare the public health statistics for 1901 and 1986, especially regarding tuberculosis. In the first year of this century, tuberculosis, in all forms, was the number 2 cause of death, only slightly behind pneumonia and influenza, with a death rate of approximately 190 deaths per 100,000 population, 11% of all deaths, or roughly 150,000 individuals who died of this disease.

In 1985, tuberculosis, of all forms, is not even in the top 20 causes of death and only about 22,000 cases were nationally reported.[1] Iowa, however, is below the national incidence, usually with the third or fourth lowest incidence of new cases of the disease, when compared to the rest of the country. Despite this encouraging picture, tuberculosis is still around, in sufficient rarity as to be a curiosity, an unfamiliar therapeutic problem, and a therapeutic challenge. In addition, because chemotherapeutic prevention of active tuberculosis is very effective, there is another important aspect of the use of antituberculosis drugs.

The therapy of tuberculosis is directed at containing the infection and eliminating any residual mycobacteria so recurrence is unlikely. The latter is achieved by administering multiple drugs, to which the mycobacteria are sensitive, for a sufficient period of time.

When a population of *Mycobacteria tuberculosis* never previously exposed to chemotherapeutic agents is surveyed for resistance to therapeutically achievable concentrations of isoniazid (INH), about one of 10^5 or 10^6 organisms will be found to be resistant to concentrations of INH which can be achieved clinically.[2,3] Since a moderately sized tuberculous cavity contains 10^8 organisms, monodrug therapy will leave untouched about 100 mycobacteria capable of multiplication. If, however, a second drug is added to the program and the incidence of resistance to the second organism is also 1 in 10^6, as it is for rifampin, only 1 organism in 10^{11} will be resistant to both. This is a reflection of the fact that resistance to different antibiotics is an independent event and the incidence of organisms resistant to 2 drugs is the sum of the individual resistance. Three drugs can increase this number astronomically to one in 10^{15}, rivaling the numbers in the federal budget.

Therefore, the therapy of tuberculosis is based on the principle of administering multiple drugs in order to exceed any theoretical incidence of combined resistance. It is also vital that the drugs are given in a dose that exceeds their minimal inhibiting concentration and lastly to give the drugs long enough to reduce organism numbers below a threshold for recurrence.[4]

When the number of organisms is small, 2 drugs are sufficient, when there are very large numbers, 3 are used. If the mycobacteria are resistant to 1 of the drugs, other drugs can be added if the organisms are sensitive to that drug to raise the number back to a level to clear the theoretical limit.

Therapy of tuberculosis is simple, safe,

This information for Iowa physicians is furnished and sponsored by the University of Iowa Hospitals and Clinics.

and highly effective if the physician gives multidrugs, makes sure the patient takes them, and the organisms are sensitive to the drugs used.

Drugs Commonly Used in TB

There are at least a score of drugs that have been or are used in the treatment of tuberculosis. Some of these are no longer used because they were weakly active and/or toxic (i.e., paraaminosalycic acid, PAS).

Isoniazid (INH)

This is an almost ideal antituberculous drug. It is cheap, non-toxic, highly effective, and useful in all forms of tuberculosis. The drug is rapidly absorbed from the gastrointestinal tract and is metabolized mainly by acetylation in the liver. This metabolism is genetically determined. It has been shown that rapid acetylation is a somatic dominant trait and is more common in certain ethnic groups such as Japanese and Eskimos. Despite this substantial difference in metabolic rate, there is no convincing evidence that there is any difference in the toxicity or efficacy of isoniazid between the 2 groups.

The major toxic problems encountered with isoniazid are uncommon and almost always reversible. INH combines with pyridoxine (Vitamin B_6) to form a Shiff base. The vitamin is inactivated; and as a result, INH depletes the body of the vitamin, producing a B_6 deficiency induced polyneuritis. Pain, parasthesia, paralysis, and other, at times bizarre, symptoms occur. This complication of INH therapy can be prevented with pyridoxine (50 mg/day) and by avoiding higher than recommended doses of INH (10 mg/kg, 300 mg/day).

INH has been reported to produce seizures on rare occasions especially in individuals with a history of seizure disorders. In addition, mental changes, such as irritability, confusion, bizarre dreams, loss of memory, and euphoria have been described in occasional patients.

The major side effect of INH is a chemical hepatitis with hepatocellular damage, usually producing mild elevation of hepatic enzymes, rarely hepatic failure, and even death. This complication is age related, almost never observed in children and adolescents and rare in young adults. About 2% of patients over 45 years of age will have significant problems. While in most instances, these patients have only mild elevation of liver enzymes, they may also occasionally have jaundice and serious chemical hepatitis will follow, particularly if the patient continues to take INH after symptoms of liver damage appears. When liver problems occur, stopping the drug usually results in prompt recovery of hepatic function and often the drug can be restarted without difficulty. It has been suggested that prior liver damage, other hepatotoxic drugs, especially alcohol, may increase the toxicity of INH.[5]

Rifampin

The rifamycins are a group of antibiotics which have a fairly wide spectrum of antibacterial activity. Rifampin, for example, has been used for the therapy of methicillin resistant *Staphylococcus aureus* and leprosy as well as the prophylaxis of meningococcal meningitis.

As an antituberculous agent, it is probably as potent as INH and like INH is useful for all forms of the disease.[6] It is bacteriocidal and appears to interfere with mycobacterial growth by interfering with an enzyme, DNA dependent RNA polymerase. Since this is key to its action, resistance to rifampin occurs as a single step mutation by a change in the rifampin binding site on DNA dependent RNA polymerase so that rifampin is no longer bound. Resistance to rifampin is induced rapidly.

Adverse reactions to rifampin are not common. Minor GI problems such as nausea and vomiting can occur. More serious is rifampin-induced hepatitis. As with INH, mild elevation of liver enzymes and even jaundice can occur with rifampin and recovery, even when the drug is continued, is usual. Occasionally, serious hepatic problems including death can occur, more often seen in alcoholics, the elderly, and when the drug is used in combination with INH.

Rifampin induces hepatic microsomes and can adversely interact with a large variety of drugs by increasing the rate of their metabolism and reducing their effectiveness. Among the drugs that can be affected are digoxin, quinidine, the sulfonylurea antidiabetic drugs, certain beta blockers, and the coumadin anticoagulants.[7] There has also been a suggestion

(Please turn to page 562)

(Continued from page 561)

that rifampin may interfere with the action of oral contraceptives.

Lastly, while it is not a true side effect, the bright orange-red color of rifampin appears in the sweat, urine, and even breast milk and as a result, can alarm the uninformed patient. This color is useful to ascertain if a patient is taking the drug by visual inspection of a causal urine specimen.

Unimportant but interesting properties of this class of antituberculous agents include producing abnormal light chain immunoglobulins, suppressing the T cell function, and suppressing the PPD skin test. None of these have clinical significance.[8]

Ethambutal

This antituberculous agent is active against most strains of *Mycobacterium tuberculosis* and *Mycobacterium kansasii*. It has little or no activity against other bacteria. EMB, the commonly used abbreviation for ethambutal, has been widely used in the past as a companion drug for INH, in order to prevent the emergence of resistant organisms. It is generally perceived to be less effective than INH or rifampin, at least when given orally, but is a more potent drug than streptomycin or PAS, drugs which EMB displaced from therapy. Antitubercular therapy with INH and EMB given for 18 months was standard until the introduction of rifampin.

The major side effect of EMB is the development of optic neuritis and the loss of color discrimination. These untoward effects are clearly dose related and very rare when 15 mg/kg/day of the drug is administered, even for months. Even when 25 mg/kg is used, this dose is usually safe, if not continued for more than 60 days in patients with normal renal function. The visual changes are usually reversible when the drug is stopped, and permanent visual damage is rare. The drug has been shown to increase blood urate levels but attacks of clinical gout are unusual.[4]

PZA

Pyrazamide (PZA) is a simple chemical

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BRIEF SUMMARY

CONTRAINDICATIONS
There are no known contraindications to the use of sucralfate.

PRECAUTIONS
Duodenal ulcer is a chronic, recurrent disease. While short-term treatment with sucralfate can result in complete healing of the ulcer, a successful course of treatment with sucralfate should not be expected to alter the post-healing frequency or severity of duodenal ulceration.

Drug Interactions: Animal studies have shown that the simultaneous administration of CARAFATE with tetracycline, phenytoin, or cimetidine will result in a statistically significant reduction in the bioavailability of these agents. This interaction appears to be nonsystemic in origin, presumably resulting from these agents being bound by CARAFATE in the gastrointestinal tract. The bioavailability of these agents may be restored simply by separating the administration of these agents from that of CARAFATE by two hours. The clinical significance of these animal studies is yet to be defined.

Carcinogenesis, Mutagenesis, Impairment of Fertility: No evidence of drug-related tumorigenicity was found in chronic oral toxicity studies of 24 months' duration conducted in mice and rats at doses up to 1 gm/kg (12 times the human dose). A reproduction study in rats at doses up to 38 times the human dose did not reveal any indication of fertility impairment. Mutagenicity studies have not been conducted.

Pregnancy: Pregnancy Category B. Teratogenicity studies have been performed in mice, rats, and rabbits at doses up to 50 times the human dose and have revealed no evidence of harm to the fetus due to sucralfate. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when sucralfate is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS
Adverse reactions to sucralfate in clinical trials were minor and only rarely led to discontinuation of the drug. In studies involving over 2,500 patients, adverse effects were reported in 121 (4.7%). Constipation was the most frequent complaint (2.2%). Other adverse effects, reported in no more than one of every 350 patients, were diarrhea, nausea, gastric discomfort, indigestion, dry mouth, rash, pruritus, back pain, dizziness, sleepiness, and vertigo.

DOSAGE AND ADMINISTRATION
The recommended adult oral dosage for duodenal ulcer is 1 gm four times a day on an empty stomach.

Antacids may be prescribed as needed for relief of pain but should not be taken within one-half hour before or after sucralfate.

While healing with sucralfate may occur during the first week or two, treatment should be continued for 4 to 8 weeks unless healing has been demonstrated by x-ray or endoscopic examination.

HOW SUPPLIED
CARAFATE (sucralfate) 1-gm pink tablets are supplied in bottles of 100 and in Unit Dose Identification Paks of 100. The tablets are embossed with MARION/1712. Issued 3/84

References:
1. Grossman MI: *Scand J Gastroenterol* 58 (suppl 15):7-16, 1980.
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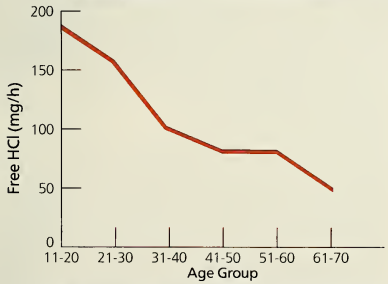
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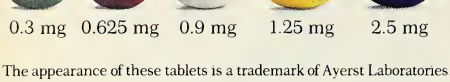
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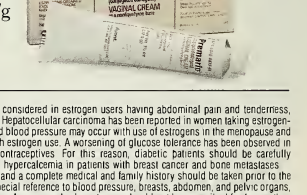
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Vaginal Cream

0.625 mg/g



BRIEF SUMMARY (FOR FULL PRESCRIBING INFORMATION AND PATIENT INFORMATION, SEE PACKAGE CIRCULARS.)

PREMARIN® Brand of conjugated estrogens tablets, USP
PREMARIN® Brand of conjugated estrogens Vaginal Cream, in a nonliquefying base

1. ESTROGENS HAVE BEEN REPORTED TO INCREASE THE RISK OF ENDOMETRIAL CARCINOMA. Three independent, case-controlled studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens for more than one year. This risk was independent of the other known risk factors for endometrial cancer. These studies are further supported by the finding that incidence rates of endometrial cancer have increased sharply since 1969 in eight different areas of the United States with population-based cancer reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade. The three case-controlled studies reported that the risk of endometrial cancer in estrogen users was about 4.5 to 13.9 times greater than in nonusers. The risk appears to depend on both duration of treatment and on estrogen dose. In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible. When prolonged treatment is medically indicated, the patient should be reassessed on at least a semi-annual basis to determine the need for continued therapy. Although the evidence must be considered preliminary, one study suggests that cyclic administration of low doses of estrogen may carry less risk than continuous administration. It therefore appears prudent to utilize such a regimen. Close clinical surveillance of all women taking estrogens is important. In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding, adequate diagnostic measures should be undertaken to rule out malignancy. There is no evidence at present that "natural" estrogens are more or less hazardous than "synthetic" estrogens at equi-estrogenic doses.

2. ESTROGENS SHOULD NOT BE USED DURING PREGNANCY. The use of female sex hormones, both estrogens and progestogens, during early pregnancy may seriously damage the offspring. It has been shown that females exposed in utero to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing, in later life, a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated as not greater than 4 per 1,000 exposures. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have vaginal adenosis, epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are precursors of malignancy. Although similar data are not available with the use of other estrogens, it cannot be presumed they would not induce similar changes. Several reports suggest an association between intrauterine exposure to female sex hormones and congenital anomalies, including congenital heart defects and limb-reduction defects. One case-controlled study estimated a 4.7-fold increased risk of limb-reduction defects in infants exposed in utero to sex hormones (oral contraceptives, hormone withdrawal tests for pregnancy, or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb-reduction defects in exposed fetuses is somewhat less than 1 per 1,000. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well-controlled studies that progestogens are effective for these uses. If PREMARIN is used during pregnancy, or if the patient becomes pregnant while taking this drug, she should be apprised of the potential risks to the fetus, and the advisability of pregnancy continuation.

DESCRIPTION: PREMARIN (conjugated estrogens, USP) contains a mixture of estrogens, obtained exclusively from natural sources, blended to represent the average composition of material derived from pregnant mares' urine. It contains estrone, equilin, and 17α-dihydroequilin, together with smaller amounts of 17α-estradiol, equilenin, and 17α-dihydroequilenin as salts of their sulfate esters. Tablets are available in 0.3 mg, 0.625 mg, 0.9 mg, 1.25 mg, and 2.5 mg strengths of conjugated estrogens. Cream is available as 0.625 mg conjugated estrogens per gram.

INDICATIONS AND USAGE: PREMARIN (conjugated estrogens tablets, USP): Moderate-to-severe *vasomotor* symptoms associated with the menopause. (There is no evidence that estrogens are effective for nervous symptoms or depression without associated vasomotor symptoms and they should not be used to treat such conditions.) Osteoporosis (abnormally low bone mass). Atrophic vaginitis. Kraurosis vulvae. Female castration.

PREMARIN (conjugated estrogens) Vaginal Cream is indicated in the treatment of atrophic vaginitis and kraurosis vulvae.

PREMARIN HAS NOT BEEN SHOWN TO BE EFFECTIVE FOR ANY PURPOSE DURING PREGNANCY AND ITS USE MAY CAUSE SEVERE HARM TO THE FETUS (SEE BOXED WARNING).

Concomitant Progestin Use: The lowest effective dose appropriate for the specific indication should be utilized. Studies of the addition of a progestin for 7 or more days of a cycle of estrogen administration have reported a lowered incidence of endometrial hyperplasia. Morphological and biochemical studies of the endometrium suggest that 10 to 13 days of progestin are needed to provide maximal maturation of the endometrium and to eliminate any hyperplastic changes. Whether this will provide protection from endometrial carcinoma has not been clearly established. There are possible additional risks which may be associated with the inclusion of progestin in estrogen replacement regimens. (See PRECAUTIONS.) The choice of progestin and dosage may be important; product labeling should be reviewed to minimize possible adverse effects.

CONTRAINDICATIONS: Estrogens should not be used in women (or men) with any of the following conditions: 1. Known or suspected cancer of the breast except in appropriately selected patients being treated for metastatic disease. 2. Known or suspected estrogen-dependent neoplasia. 3. Known or suspected pregnancy (see Boxed Warning). 4. Undiagnosed abnormal genital bleeding. 5. Active thrombophlebitis or thromboembolic disorders. 6. A past history of thrombophlebitis, thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast or prostatic malignancy).

WARNINGS: Estrogens have been reported to increase the risk of endometrial carcinoma (see Boxed Warning). However, a recent large, case-controlled study indicated no increase in risk of breast cancer in postmenopausal women. A recent study has reported a 2- to 3-fold increase in the risk of surgically confirmed gallbladder disease in women receiving postmenopausal estrogens.

Adverse effects of oral contraceptives may be expected at the larger doses of estrogen used to treat prostatic or breast cancer or postpartum breast engorgement, it has been shown that there is an increased risk of thrombosis in men receiving estrogens for prostatic cancer and women for postpartum breast engorgement. Users of oral contraceptives have an increased risk of diseases, such as thrombophlebitis, pulmonary embolism, stroke, and myocardial infarction. Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users. An increased risk of postsurgery thromboembolic complications has also been reported in users of oral contraceptives. If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism, or during periods of prolonged immobilization. Estrogens should not be used in persons with active thrombophlebitis, thromboembolic disorders, or in persons with a history of such disorders in association with estrogen use. They should be used with caution in patients with cerebral vascular or coronary artery disease. Large doses (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast, have been shown to increase the risk of nonfatal myocardial infarction, pulmonary embolism and thrombophlebitis. When doses of this size are used, any of the thromboembolic and thrombotic adverse effects should be considered a clear risk.

Benign hepatic adenomas should be considered in estrogen users having abdominal pain and tenderness, abdominal mass, or hypovolemic shock. Hepatocellular carcinoma has been reported in women taking estrogen-containing oral contraceptives. Increased blood pressure may occur with use of estrogens in the menopause and blood pressure should be monitored with estrogen use. A worsening of glucose tolerance has been observed in patients on estrogen-containing oral contraceptives. For this reason, diabetic patients should be carefully observed. Estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases.

PRECAUTIONS: Physical examination and a complete medical and family history should be taken prior to the initiation of any estrogen therapy with special reference to blood pressure, breasts, abdomen, and pelvic organs, and should include a Papanicolaou smear. As a general rule, estrogen should not be prescribed for longer than one year without another physical examination being performed. Conditions influenced by fluid retention, such as asthma, epilepsy, migraine, and cardiac or renal dysfunction, require careful observation. Certain patients may develop manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding, mastodynia, etc. Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients. Oral contraceptives appear to be associated with an increased incidence of mental depression. Patients with a history of depression should be carefully observed. Pre-existing uterine leiomyomata may increase in size during estrogen use. The pathologist should be advised of estrogen therapy when relevant specimens are submitted. If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated. Estrogens should be used with care in patients with impaired liver function, renal insufficiency, metabolic bone diseases associated with hypercalcemia, or in young patients in whom bone growth is not yet complete. If concomitant progestin therapy is used, potential risks may include adverse effects on carbohydrate and lipid metabolism.

The following changes may be expected with larger doses of estrogen:

a. Increased sulfobromophthalein retention.
b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3, increased norepinephrine-induced platelet aggregability.
c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by PBI, T_4 by column, or T_4 by radioimmunoassay. Free T_3 resin uptake is decreased, reflecting the elevated TBG; free T_4 concentration is unaltered.
d. Impaired glucose tolerance.
e. Decreased pregnanediol excretion.
f. Reduced response to methyrapone test.
g. Reduced serum folate concentration.
h. Increased serum triglyceride and phospholipid concentration.

As a general principle, the administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk.

Long-term, continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina, and liver. However, in a recent, large case-controlled study of postmenopausal women there was no increase in risk of breast cancer with use of conjugated estrogens.

ADVERSE REACTIONS: The following have been reported with estrogenic therapy, including oral contraceptives: breakthrough bleeding, spotting, change in menstrual flow; dysmenorrhea; premenstrual-like syndrome; amenorrhea during and after treatment; increase in size of uterine fibromyomata; vaginal candidiasis; change in cervical erosion and in degree of cervical secretion; cystitis-like syndrome; tenderness, enlargement, secretion (of breasts); nausea, vomiting, abdominal cramps, bloating; cholestatic jaundice; chloasma or melasma which may persist when drug is discontinued; erythema multiforme; erythema nodosum; hemorrhagic eruption; loss of scalp hair; hirsutism; steepening of corneal curvature; intolerance to contact lenses; headache, migraine; dizziness; mental depression; chorea; increase or decrease in weight; reduced carbohydrate tolerance; aggravation of porphyria; edema; changes in libido.

ACUTE OVERDOSAGE: May cause nausea, and withdrawal bleeding may occur in females.

DOSAGE AND ADMINISTRATION:

PREMARIN® Brand of conjugated estrogens tablets, USP

1. *Given cyclically for short-term use only:* For treatment of moderate-to-severe *vasomotor* symptoms, atrophic vaginitis, or kraurosis vulvae associated with the menopause (0.3 mg to 1.25 mg or more daily). The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible. Administration should be cyclic (eg, three weeks on and one week off). Attempts to discontinue or taper medication should be made at three- to six-month intervals.

2. *Given cyclically:* Osteoporosis. Female castration. Osteoporosis — 0.625 mg daily. Administration should be cyclic (eg, three weeks on and one week off). Female castration — 1.25 mg daily, cyclically. Adjust upward or downward according to response of the patient. For maintenance, adjust dosage to lowest level that will provide effective control.

Patients with an intact uterus should be monitored for signs of endometrial cancer and appropriate measures taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

PREMARIN® Brand of conjugated estrogens Vaginal Cream

Given cyclically for short-term use only: For treatment of atrophic vaginitis or kraurosis vulvae.

The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible.

Administration should be cyclic (eg, three weeks on and one week off).

Attempts to discontinue or taper medication should be made at three- to six-month intervals.

Usual dosage range: 2 g to 4 g daily, intravaginally, depending on the severity of the condition.

Treated patients with an intact uterus should be monitored closely for signs of endometrial cancer and appropriate diagnostic measures should be taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

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compound with potent antituberculous activity, similar to isoniazid or rifampin. It is highly water soluble and, like INH, is non-polar and diffuses well into the CNS, pleural effusions, and caseous lesions.

PZA has been widely used outside the U.S. because it is inexpensive and effective. In this country, as well as in Europe, it has been employed much less commonly than in the developing world, particularly for primary treatment of tuberculosis when drug-sensitive organisms are expected.

This restricted use has been caused by 2 perceptions of physicians: That drug costs, of rifampin for example, are not a serious problem in the developed countries and that PZA has a significant risk of hepatotoxic side effects.

PZA causes, in some instances, hepatocellular damage which can lead to jaundice and even fatal liver failure. These side effects are related to dose, probably to age, and perhaps renal function. The safety margin is not large and the patient's ideal weight, rather than the actual weight, is used to calculate the dose, at least in grossly obese individuals. Doses of 25 to 30 mg/kg/day, given in divided doses, are usually safe. A total dose greater than 3 gm/day should be avoided. PZA can produce hyperuricemia and on occasion precipitates clinical gout which can be controlled by concomitant administration of allopurinol.[5]

Other Drugs

There are a large number of other drugs which are potentially useful for the treatment of tuberculosis. These are not widely used because of their side effects or lack of effectiveness or both. These drugs are used to treat drug resistant tuberculosis and in some instances, atypical mycobacterial infections including infection with *Mycobacterium avium-intracellulare* complex (MIC)[9].

Because infection with this difficult to treat mycobacterial infection has been encountered as a terminal complication of patients who have AIDS (acquired immunodifficiency syndrome) and has been refractory to therapy with the drugs usually prescribed to treat infection with *M. tuberculosis*, there has been a search for more effective agents.

Streptomycin was the first widely used antituberculous drug. Its use has declined because it is ineffective orally, costs more to give, and has cumulative ototoxicity. It is still used occasionally for the treatment of atypical mycobacterial infections, especially MIC. It has the advantage that it is an injectable agent and with injectable INH can be given to obtunded patients. Recently injectable rifampin became available and removed this indication for streptomycin. As a result, streptomycin is seldom used.

Clofazamine is a drug which has been used for several years to treat the multibacillary forms of leprosy. Despite its name, it is not related to any other group of chemotherapeutic or antibiotic agents. It appears to inhibit replication of binding to DNA and as a result inhibits mycobacterial growth.

It is a phenazine dye with a bright orange-red color that appears in body tissue, including the conjunctiva and the skin. Here it is discolored by light and results in deep red-brown color which may, due to its long half life, take months to disappear if the drug is discontinued. Clofazamine also commonly produces nausea, vomiting, and diarrhea.[10]

Recently it has been used in the treatment of patients with AIDS who have MIC infections. Its approval by the FDA in this regard has been for compassionate use. Its effects in this infection, as a complication of AIDS, has been anything but spectacular, as with other therapy.[11]

Using Antituberculous Drugs

As stated previously, the use of antituberculous drugs is governed by the principles of providing as many drugs as needed to eliminate most, if not all, mycobacteria. Since the number of organisms involved in asymptomatic skin test convertors is small, one drug, almost always isoniazid, is used in prophylaxis. The number of bacteria in tuberculous pleural effusions and tuberculous meningitis is greater than in asymptomatic carriers and as a result 2 drugs are employed, isoniazid and rifampin or, on some occasions, INH and EMB, if there is no suspicion of infection with INH resistant mycobacteria.

If the lung is involved in the disease, 2

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drugs are often sufficient; but when multiple cavities are present and there is widespread disease, 3 drugs are used, at least for initial therapy. A common practice is to add EMB for the first 60 days to a standard regime of INH and rifampin.

In extra-pulmonary tuberculosis, 3 drugs are often employed and are continued for a period of time longer than pulmonary therapy. While this dictum has been challenged recently, it was originally formulated on the basis that abscesses, in bone, lymph nodes, or the kidney, contained large numbers of mycobacteria and may present problems for the free diffusion of the drugs into the infected tissue.[12]

TABLE 1

INH PROPHYLAXIS*

Description	*Risk of Active TB†*	*Priority*
Recent skin test convertor	3%	High
Recently exposed, negative skin test	0.5%	High (young) Moderate (adults)
Positive PPD, abnormal chest x-ray	1%	High
Positive PPD, normal CXR	0.1%	Low for adults; High for adolescents; High for immunosuppressed

* Compiled from multiple sources[5, 16, 17]
† Approximate, as %/year

Prophylaxis

The indications for INH to prevent tuberculosis is based on risk benefit ratio. These have been calculated in several studies, all with the same conclusion, that there are relatively high risk situations where prophylaxis is indicated and others where it is relatively indicated, the latter dependent on either a low risk of INH-induced hepatitis or if there is immunosuppression which raises the risk of active disease to a level that is greater than the risk of a drug reaction.[13] Table 1 lists the estimated risks of developing clinical active disease in 1 year for groups identified by their exposure. As can be seen, certain individuals, for example, children in a household where a recent or continuous exposure to a known infectious case of tuberculosis has occurred, have a relatively high risk of developing active disease. These children have a low risk of INH induced hepatitis. Added to this is the known high risk of tuberculous meningitis with its high prevalence of serious complications.[14] Taken together these make prophylaxis essential. In the instance of a person over 35 years of age who has a remote conversion of his skin test with a normal chest x-ray and is well, the benefits of preventive therapy are small and the risk of hepatitis relatively high (2.3% in the 50-60 year age groups).

In the latter low risk group however, therapy for Hodgkin's disease or the presence of a lymphoma would change the risks and indications since these conditions may produce immunosuppression.

Thus, it can be seen that the physician who contemplates prophylaxis of a patient must take the clinical picture into account before deciding. Alcoholism with continuous heavy drinking will increase the risks of hepatitis and could lead to a decision not to use INH. Added to that consideration would be the risk of non-compliance with the program in an alcoholic. Non-compliance is a serious and common problem in alcoholics and individuals who have social or psychological problems.

Pregnancy, actual or contemplated, is not a contraindication for the therapy of active tuberculosis but is a relative contraindication for prophylaxis. It is usually recommended that the program be delayed until after delivery; but again, in certain situations, in a known recent conversion, for example, judgment must be used and many knowledgeable physicians would give INH.

None of the commonly employed antituberculous drugs have been convincingly identified as teratogenetic, and these drugs have been used in large numbers of women in all stages of pregnancy including preconception and during lactation without defined problems. Nevertheless, given the current le-

gal climate, caution should be used when using any drug in pregnancy.

The usual program for prophylaxis is INH 300 mg/day (in children 10 mg/kg) given as a single morning dose with pyridoxine 50 mg given for 9 months. Some reports recommend 12 month therapy, but the data demonstrating the effectiveness of INH prophylaxis reveals that there is not an absolute threshold of success when recorded by months of therapy. It has been shown that the benefits are minimal for the first 3 months and then increase rapidly only to level out by the ninth month. The last 3 months of drug administration add only a few additional percent of prevention and add little to what has been achieved.

In prophylaxis, as with therapy for active tuberculosis, compliance is essential for success. Non-compliant individuals can be given INH 900 mg/day twice a week (children 15 mg/kg) in a supervised program with suitable controls to ensure the patient takes the drug. Supervision includes visits, urine drug testing, and a skeptical no-nonsense attitude.

Therapy of Active Diseases

In embarking on a course of antituberculous drugs, the prescribing physician is faced with several problems. The decision to initiate therapy can be easy, as when mycobacteria are identified in the sputa by smear or culture, there is an x-ray compatible with the disease, and a positive PPD skin test. In other instances, a positive skin test and compatible x-ray will be all that is available and this is usually sufficient to begin therapy and evaluate contacts. Lastly, it must be remembered that if immunity of the patient is suppressed, the diagnosis of tuberculosis may be obscured and that usually it is better to start therapy and stop if clinical judgment is not confirmed.

In the instance of tuberculous meningitis where prompt therapy is clearly related to prognosis, an aggressive attitude is indicated.

Current recommendation for therapy of pulmonary tuberculosis, where there is no suspicion of drug resistance, is INH 300 mg/day and rifampin 600 mg/day given as a single morning dose for 9 months.[17] B_6 should be given to eliminate the small chance of INH induced deficiency (50 mg/day).

If there are large numbers of bacteria involved, then EMB 25 mg/kg (based on the ideal weight) given for 60 days may reduce the chances of treatment failure. If there is renal failure, the dose should be reduced.

Some individuals recommend INH and rifampin for 12 months since the incidence of drug reactions is much less after initial treatment and the additional 3 months may provide additional insurance against recurrence. Prolonged therapy should be used in immunosuppressed individuals.

Extra-pulmonary disease should be treated for 12 months and an initial third drug should be used routinely. Surprisingly, meningitis will usually respond to only 2 drugs since the number of mycobacteria involved are small. Steroids are often used in meningitis.[18]

If the patient, or the source case for a patient, has been a resident in certain places, for example, southeast Asia, there is another potential additional problem. Because INH is freely available over the counter and even included in commercial cough remedies in that area, INH resistance is not uncommon. If only INH and rifampin are used in a patient from these areas of the world, the program may be inadequate. In this instance, EMB 15 mg/kg should be used and therapy with three drugs prolonged to one year.

Atypical Mycobacterial Infection

These agents have a very high, sometimes universal, resistance to antituberculous drugs. As a result, therapy can be both complex and unrewarding.

In the case of *Mycobacteria kansasii* infection, standard therapy with three drugs for 1 year has a high rate of success; and as a result, this infection can be approached with optimism.

MIC infections do not do well, often requiring surgery, and should have specialist care.[9] This infection in patients with AIDS is widespread.[19] Current data indicates that drug therapy does little or nothing to improve outcome and may add the miseries of drug side effects to the other problems involved.

Infection with *M. tuberculosis* in AIDS patients will respond to conventional three-drug therapy.

Given the current status of chemotherapy for tuberculosis, a success rate approaching 100% can be anticipated in cases infected with

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DRUG THERAPY REVIEW

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drug-sensitive organisms. Non-compliance is the only significant remaining hazard. As a result, supervised intermittent chemotherapy has been used to circumvent this problem. Its use is limited to those, and only those, who cannot or will not follow conventional therapy. It is not used for convenience.

Initially, the patient is hospitalized or seen daily and given standard three-drug therapy for 2 to 3 months. This is followed by biweekly supervised INH 15 mg/kg, (900 mg) in adults, and rifampin 600 mg (15 mg/kg), for 1 year or longer. Supervision must be accompanied by drug testing of the urine and satisfactory clinical progress of the disease. Continued alcoholism even when accompanied by malnutrition is not an impediment to success but may increase drug toxicity.

Summary

Antituberculous chemotherapy is effective and safe if only a few relatively simple basic rules are used. Multidrug therapy is vital and compliance with the drug program is essential. Prophylaxis with INH is very useful especially in recent skin test convertors and in the young. Immunosuppression, a common problem, has introduced additional indications of prophylaxis. — J. E. KASIK, M.D., *Professor of Internal Medicine.*

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Iowa Department of Public Health

Conditional Paramedic Pilot Project

One of the many health care concerns facing Iowa's rural communities is the continued availability of ambulance services. Most of Iowa's ambulance services are experiencing problems with recruiting trained personnel; and, many are finding it difficult to obtain funds to pay for new or replacement equipment.

Adopted in 1979, Iowa's administrative rules for advanced emergency medical care stipulated that services provide advanced care on a 24-hour, 7-day-per-week basis. This was to ensure an Advanced Emergency Medical Technician (EMT) or Paramedic would be available whenever the service was called. As a consequence, advanced EMT's and Paramedics who live in small, rural communities could not provide the level of care for which they were trained. Many Emergency Medical Service (EMS) providers were also discouraged from taking advanced care training, knowing once training was completed, they might not be able to use those skills if their service was not authorized to provide that level of care on a 24-hour basis. In today's "real" world, however, this restriction is not the most realistic or practical approach.

In an attempt to encourage and facilitate the provision of "advanced care" in rural areas, the Iowa Department of Public Health (IDPH) recently adopted (effective September 2, 1987) administrative rules establishing a temporary pilot project. The project is limited to a maximum of 30 services to be utilized by Paramedics providing advanced emergency medical care *whenever* Paramedics are available.

Those services accepted into the project must maintain a minimum level of service at *all* times. Currently authorized advanced services (i.e., EMT-I or EMT-D), must maintain that level of advanced care authorization on a 24-hour basis. However, when a Paramedic is available, the Paramedic can operate at his or her level of certification.

Services not currently authorized as an advanced service, must maintain at least 2 Emergency Medical Technicians-Ambulance (EMT-A's) on each primary response vehicle call.

All services in the pilot project must meet the other applicable requirements of the administrative code. For example, all vehicle and equipment standards must be met. A medical director (M.D. or D.O., trained and certified in Advanced Cardiac Life Support) and 24-hour medical direction must be available. In essence, all requirements except the 24-hour coverage must be met to participate in the pilot project.

Also, participating services must utilize a special patient care report to collect data relating to the project study. In addition, services are provided with quality assurance and skills maintenance forms. The quality assurance form is used by the service program's medical director as part of the required audit process. Medical audits are required for all calls where advanced care is provided and are to be randomly selected for audit purposes in reference to basic care calls.

The Skills Maintenance Log is used to document skills performed by each prehospital provider. This form must then be reviewed by the medical director and submitted to the De-

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IOWA DEPARTMENT OF PUBLIC HEALTH

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partment. The form can be a valuable tool for identifying problems (e.g., poor performance in intravenous attempts), assisting the medical director with targeting needed refresher training, etc.

To avoid misleading the public regarding the service's capabilities, conditionally authorized Paramedic services cannot advertise themselves as a "Paramedic" service. However, each service is provided with a press release for the local media to inform the public the service is participating in the pilot project and will be able to provide Paramedic-level care whenever a Paramedic is available.

Benefits can occur as a result of this project. During the first few hours after the study began, an EMT-D service utilized their defibrillation skills resulting in a bradycardia. The Paramedic was then able to utilize Atropine to restore a perfusing rhythm. The infield use of this drug by the Paramedic would not have been possible a few hours before.

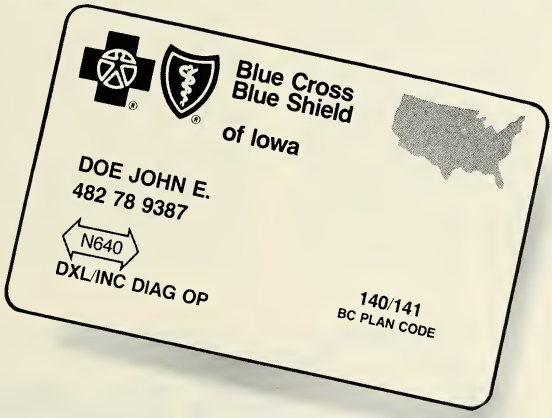
Project participants may continue providing advanced care until July 1, 1988. Prior to that time, the IDPH must present a report to the Iowa Board of Health regarding the study results and make a recommendation on the merits of the study. If the study proves to be a viable alternative for the provision of advanced emergency medical care, it will be recommended the concept be permanently incorporated into the administrative rules.

September 1987 Morbidity Report

Disease	Sept. 1987 Total	1987 to Date	1986 to Date	Most Sept. Cases Reported From These Counties
Aids	1	29	14	NA
Amebiasis	1	23	39	Story
Brucellosis	0	3	1	
Chickenpox	22	7603	6654	Scattered
Campylobacter	42	212	266	Scattered
Cytomegalovirus	3	21	16	Buena Vista, Polk, Scott
Eatons Agent Infection	1	45	14	Linn
Encephalitis, viral	5	8	16	Dubuque, Polk
Erythema Infectiosum	0	880	262	
Gastroenteritis (GIV)	429	11235	11966	Scattered
Giardiasis	56	298	281	Scattered
Hepatitis, A	2	84	35	Black Hawk
Hepatitis, B	5	95	72	Black Hawk, Johnson, Polk, Webster
Hepatitis, Non A-B	2	25	23	Johnson, Woodbury
Hepatitis type unspecified	0	5	1	
Herpes Simplex	95	895	953	Scattered
Herpes Zoster	0	2	0	
Histoplasmosis	3	12	18	Black Hawk, Buchanan, Floyd
Infectious mononucleosis	7	138	160	Black Hawk, Johnson, Linn
Influenza, lab confirmed	0	67	247	
Influenza-like illness (URI)	778	25480	72132	Scattered
Legionellosis	0	6	8	
Malaria	0	4	1	
Meningitis				
aseptic	14	54	36	Scattered
bacterial	3	62	65	Dallas, Polk, Woodbury
meningococcal	0	3	11	
Mumps	16	401	26	Black Hawk, Hamilton, Polk, Story
Pertussis	10	41	18	Dubuque, Wapello
Rabies in animals	23	218	145	Scattered
Reye Syndrome	0	0	0	
Rheumatic Fever	1	3	6	Winneshiek
Rubella				
(German measles)	0	1	1	
Measles	0	0	134	
Salmonellosis	34	139	199	Scattered
Shigellosis	17	54	12	Scattered
Toxic Shock Syndrome	0	5	8	
Tuberculosis				
total ill	2	33	39	Allamakee, Iowa
bact. pos.	2	33	36	Allamakee, Iowa
Typhoid Fever	0	0	1	
Venereal diseases:				
Gonorrhea	204	2182	2734	Scattered
Syphilis	2	21	6	Polk

Other Non-Reportable Diseases: Ureaplasma Urealyticum — 2, Cerro Gordo, 2, Johnson.

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About Iowa Physicians

Dr. Donald K. Miller has joined Manchester Family Medical Associates, P.C. Dr. Miller received the M.D. degree at the U. of I. College of Medicine and completed his family practice residency at Mercy/St. Luke's Hospital in Davenport. Prior to locating in Manchester, Dr. Miller practiced in Washington, Iowa. **Dr. Michael J. Niehaus** has joined Surgical Associates in Burlington. Dr. Niehaus received the M.D. degree at the U. of I. College of Medicine and completed his surgery residency at Iowa Methodist Medical Center in Des Moines. **Dr. Jeffrey R. Hallman** has joined **Dr. Juergen F. Holl** in the practice of radiology and nuclear medicine at Mercy Hospital in Davenport. Dr. Hallman received the M.D. degree at the University of Illinois School of Medicine in Rockford, Illinois and completed his radiology residency at Northeastern Ohio University College of Medicine in Rootstown, Ohio.

Dr. Cheryl Johnson has opened an office for family practice in North Liberty. Dr. Johnson received the M.D. degree at the University of Kansas School of Medicine in Lawrence, Kansas and completed her family practice residency at University of Iowa Hospitals and Clinics. **Dr. Charles Wirtz** has opened an internal medicine practice in Humboldt. Dr. Wirtz received the M.D. degree at the U. of I. College of Medicine and completed his internal medicine residency at St. Joseph's Hospital

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in Marshfield, Wisconsin. **Dr. Michael Hendricks** has joined Orthopaedic and Reconstructive Surgery Associates in Burlington. Dr. Hendricks received the M.D. degree at the University of Florida School of Medicine in Gainesville, Florida, and completed his orthopaedic residency at Duke University Medical School in Durham, North Carolina.

New Iowa Doctors

Dr. Brent Liebert has joined **Dr. Harold Taylor** in Reinbeck. Dr. Liebert received the M.D. degree at the University of Indiana School of Medicine in Indianapolis and served his family practice residency in Waterloo, Iowa and Decatur, Illinois. **Dr. Leo O. Fagre** has joined **Drs. Vincent Carstenson** and **John Brunkhorst** in Waverly. Dr. Fagre received the M.D. degree at the U. of I. College of Medicine and served his family practice residency at Broadlawns Medical Center in Des Moines. **Dr. David L. Arunski** has joined the Shenandoah Medical Clinic. Dr. Arunski received the M.D. degree at St. Louis University School of Medicine and completed his internal medicine residency at St. John's Mercy Medical Center in St. Louis, Missouri. **Dr. Charles C. Yelverton** has joined the staff of the Family Practice Clinic in Nevada. Dr. Yelverton received the M.D. degree at the University of South Dakota School of Medicine in Vermillion, South Dakota and completed his family practice residency at the U.S. Naval Hospital in Camp Pendleton, California. **Dr. Jon G. Thomas** will open an office for family practice in Logan in January, 1988. Dr. Thomas received the M.D. degree at the U. of I. College of Medicine and completed his family practice residency at Broadlawns Medical Center in Des Moines. **Dr. Deepak Bose** recently began medical practice in Hamburg. Dr. Bose received the M.D. degree at St. George's University School of Medicine and took postgraduate work at North Middlesex

(Please turn to page 572)

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Dr. Cheryl Johnson has opened an office for family practice in North Liberty. Dr. Johnson received the M.D. degree at the University of Kansas School of Medicine in Lawrence, Kansas and completed her family practice residency at University of Iowa Hospitals and Clinics. **Dr. Charles Wirtz** has opened an internal medicine practice in Humboldt. Dr. Wirtz received the M.D. degree at the U. of I. College of Medicine and completed his internal medicine residency at St. Joseph's Hospital in Marshfield, Wisconsin. **Dr. Michael Hendricks** has joined Orthopaedic and Reconstructive Surgery Associates in Burlington. Dr. Hendricks received the M.D. degree at the University of Florida School of Medicine in Gainesville, Florida and completed his orthopaedic residency at Duke University Medical School in Durham, North Carolina. **Dr. Leroy R. Schlesselman** has joined the Bettendorf Family Clinic. Dr. Schlesselman received the M.D. degree and completed his family practice residency at the U. of I. College of Medicine. **Dr. Joel E. Waymire** has joined Pediatric Associates in Des Moines. Dr. Waymire received the M.D. degree at the U. of I. College of Medicine and served his pediatric residency at Raymond Blank Memorial Hospital in Des Moines. **Dr. Michael Bernacki** has joined **Dr. E. J. DeLashmutt** in Fort Madison. Dr. Bernacki received the M.D. degree at Loyola University Stritch School of Medicine in Maywood, Illinois. He completed his internship and surgery residency at University of Illinois Metropolitan Group Hospitals.

Dr. Nidal H. Harb has joined **Dr. Saadi Albaghdadi** at Medical Associates in Clinton. Dr. Harb received his medical education at the University of Leingrad in Russia; completed a research fellowship at Baylor College of Medicine in Houston, Texas, followed by an internal medicine residency at Wright State Uni-

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versity in Dayton, Ohio. Most recently, Dr. Harb was at the University of Louisville in Kentucky where he finished a fellowship in cardiovascular disease. **Dr. William M. Parks** has opened an oncology/hematology practice in Ottumwa. Dr. Parks received the M.D. degree and interned at the U. of I. College of Medicine and completed his internal medicine residency at Case Western Reserve University in Cleveland, Ohio. **Dr. Greg L. Morford** recently began family practice in Manning. Dr. Morford received the M.D. degree at the University of Juarez in Mexico and completed his family practice residency at Iowa Lutheran Hospital in Des Moines.

Dr. Leo Tinkey has joined Marshalltown Pediatrics and Adolescent Clinic in Marshalltown. Dr. Tinkey received the M.D. degree at the U. of I. College of Medicine and completed his pediatric residency at Children's Hospital of Michigan in East Lansing, Michigan. **Dr. Michael Zlomke** has joined Cogley Medical Associates in Council Bluffs. Dr. Zlomke received the M.D. degree at the University of Nebraska College of Medicine in Omaha and completed his surgery residency at Rush Presbyterian St. Luke's Medical Center in Chicago.

Dr. James N. McManus has joined Eye Surgeon Associates in Davenport. Dr. McManus received the M.D. degree and interned at the University of Massachusetts Medical College in Worcester. He served his ophthalmology residency at the University of Pittsburgh in Pennsylvania.

Deaths

Dr. May Danielson, 86, Clinton, died August 5 at her home. Dr. Danielson received the M.D. degree at the U. of I. College of Medicine. She began medical practice in Clinton in 1946.

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OBSTETRICIAN/GYNECOLOGIST — Marshfield Clinic is seeking a board certified or eligible obstetrician/gynecologist to join its expanding regional center in Chippewa Falls. Chippewa Falls is a community of 15,000 people located in beautiful west central Wisconsin with a wide range of recreational, educational, and cultural opportunities easily accessible. The clinic is adjacent to a 110-bed JCAH accredited hospital. Marshfield Clinic is a 250-physician, multi-specialty private group practice offering a very competitive salary and fringe benefit package. Send curriculum vitae and references to Bob Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or you may call collect at 715/387-5498.

GENERAL INTERNAL MEDICINE — Marshfield Clinic is seeking a board certified or eligible general internist to join its expanding regional center in Chippewa Falls. Chippewa Falls is a community of 15,000 people located in beautiful west central Wisconsin with a wide range of recreational, educational, and cultural opportunities easily accessible. The center currently includes three internists. The clinic is adjacent to a 110-bed JCAH accredited hospital. Marshfield Clinic is a 250-physician, multi-specialty private group practice offering a very competitive salary and fringe benefit package. Send curriculum vitae and reference to Bob Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, WI 54449 or you may call collect at 715/387-5498.

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In the Public Interest

Progress Brings Paradox

It's interesting to contemplate the paradoxical nature of modern medicine. Only consider the inherent irony of the following observations. . . .

- Many of the ethical issues which are the most philosophically divisive for society stem from medical advancements which are the most beneficial for the people.
- Because they believe medicine can cure almost any problem, many Americans neglect or abuse their health.
- The most severe criticism of the medical profession and health care institutions has developed at a time when health care is better and more accessible than it has ever been.

A recent report from the Brookings Institution emphasized the fact paradox is a bewildering side effect of medical progress. . . .

"All creative achievement is disruptive. Every partial solution promptly explodes a new set of problems. The increasing application of science and technology means more frequent dislocations and more violent contradictions."

Considering the incredible amount of progress medicine has made in this century, it's not surprising to see a comparable number of ethical problems. The quality of patient care in this country has never been better; life has never been longer. The average life expectancy in America is now 75 years, up from 47 years at the turn of the century. The number of Americans over age 65 now surpasses the entire population of Canada.

During the past several decades, we have developed some miraculous tools in clinical medicine. Tools such as wonder drugs, computers and cardiac pacemakers have increased treatment options and treatment effectiveness. Carbon dioxide lasers, computerized tomographic scanners and nuclear magnetic reasonance devices allow physicians to "see" inside the body without invasive procedures. Devices such as defibrillators, respirators and resuscitators save lives that otherwise would be lost.

An explosion of new biomedical knowledge has occurred, an explosion so powerful it has peeled away the last secrets surrounding the creation of life itself. We are now witness to the cellular chain reaction that creates a living, thinking, feeling human being. Along the way, we have gathered an immense amount of new clinical knowledge concerning the diagnosis and treatment of the medical problems that afflict patients.

As recently as 1950, there was no such thing as joint replacement, artificial heart valves, ultrasound, open heart surgery, coronary bypass surgery or polio and measles vaccine. Organ transplantation and laser surgery belonged in the realm of science fiction. Yesterday's science fiction is today's reality.

Experts say we have seen only the tip of the iceberg with regard to the medical progress and attendant ethical dilemmas society will face in the coming decades. As we sort through these unprecedented ethical issues, we will do physicians and researchers a disservice if we let the complexity of the problems overwhelm or immobilize us. If medical science gives us a miracle, we must meet the responsibility of deciding how to use it.

When it comes to medical care, surely any miracle is better than none at all.

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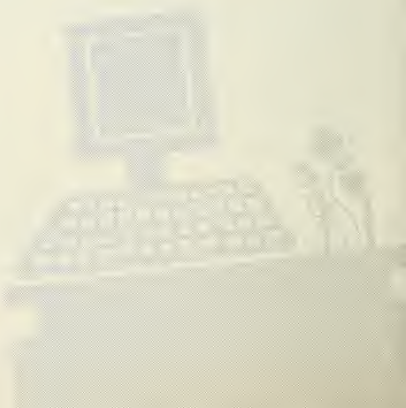
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—Frank Church, *"Is There A Santa Claus?"* New York Sun, September 21, 1897.

The officers and staff of the Iowa Medical Society wish you a joyful holiday season and peace now and forever.

D J Walter MD

Dennis J. Walter, M.D.
President

Blueprint For A Better System

HORMOZ RASSEKH, M.D.
Council Bluffs, Iowa

Spearheaded by the American Medical Association in 1982, the Health Policy Agenda for the American People is engaged in the awesome task of creating the plan for a better health care system for Americans. The author discusses the HPA's recommendations and priorities.

IF A BETTER HEALTH CARE SYSTEM could be designed for our nation, what would it look like?

This question just may be answered in the coming months and years as a result of development of the Health Policy Agenda for the American People.

The Health Policy Agenda (HPA) project was spearheaded by the American Medical Association in 1982. The final document is the product of 10,000 hours of discussion and deliberation among representatives of 172 organizations. It addresses 35 subject areas and contains 195 recommendations and 10 major position statements.

At its meeting last June, the AMA House of Delegates adopted 164 of the HPA recommendations emanating from the HPA, rejected 8 recommendations and accepted a modified version of 23.

The HPA offers a vision of what a better health care system for Americans could look like and provides a blueprint — an agenda — of how to create it.

Key Issues

The document covers a wide range of health policy issues including:

- Supply, distribution and education of health care professionals.
- Providing technology and facilities.
- Organizing resources.
- Communication of health information.

"The HPA offers a vision of what a better health care system for Americans could look like and provides a blueprint. . . ."

- Ensuring quality of care.
- Paying for services.
- Preparing for the future through research.

The HPA is a consensus document. Not everyone is in total agreement with all the recommendations and position statements. Each of the participating organizations will be free to determine which ones to support and which ones to oppose. For example, the AMA believes Medicare benefits should be provided only to the needy elderly. It was the HPA consensus that Medicare be retained as an entitlement program.

Dr. Rassekh represents the IMS on the HPA Advisory Committee and is chairman of the special IMS Committee on HPA. He is a past president of the Society.



HPA REPRESENTATIVE — Hormoz Rassekh, M.D., Council Bluffs, represented the IMS on the Health Policy Agenda (HPA) Advisory Committee. The HPA is a project through which the AMA hopes to create a blueprint for a better health care system.

An Implementation Committee comprised of HPA participants has been formed to launch a sustained and non-partisan effort to carry out the HPA program. Some of these initiatives include a public information campaign, coalition building, demonstration projects, curricula design, legislative action and additional research.

Key Priorities

The first 5 priority implementation efforts, all of which involve coalition building with other organizations, are:

1. ***Funding for Biomedical Research:*** The HPA has urged increased federal funding for basic and applied biomedical research through submission of formal statements to the U.S. Senate and House of Representatives.

2. ***Medicaid Reform:*** An HPA Ad Hoc Committee will develop proposals to reform the Medicaid program, using recommendations of the HPA final report as a point of departure. HPA calls for establishment of national standards for uniform eligibility, benefits and adequate payment mechanisms across state jurisdictions, expansion of the program to cover 14 million medically indigent individuals who are ineligible for the program because they do not meet Medicaid criteria, payment for benefits based on the patient's ability to pay and criteria to ensure that Medicaid payment levels are sufficient to encourage participation by all providers.

3. ***Consumer Information:*** The AMA and 3 other co-sponsoring organizations will develop a 1988 fall conference focused on development of appropriate consumer health information. Coordinated dissemination of this information will help the public make informed health care decisions.

4. ***Basic Health Care Benefits Package:*** An HPA Ad Hoc Committee chaired by former Utah Governor Scott Matheson will consider the essential elements that should be contained in any acceptable comprehensive package of health care benefits. Representatives from provider, consumer, business, insurance and labor organizations will assist in this endeavor.

5. ***Patient Compensation Fund Demonstration Program:*** The Michigan State Medical Society has agreed to take part in a demonstration study of a patient compensation fund to replace the legal (tort) system as the initial entry point for recovery of damages. This project will focus on a system for adjudicating awards.

A special committee of the Iowa Medical Society is monitoring developments relating to all HPA activities. The committee will submit specific recommendations regarding any initiatives to be undertaken in Iowa to the Society's Executive Council or House of Delegates.

JOHN GRONINGA, STATE REPRESENTATIVE

Questions and Answers



A Legislator Looks At Tort Reform

The Iowa Medical Society and other organizations are launching a grassroots effort to ensure significant tort reform is on the agenda when the 1988 Iowa General Assembly convenes January 11. In this month's Questions and Answers, the Honorable John Groninga, State Representative from House District 20, discusses the need for tort reform and what physicians can do to improve the chances the Nebraska Plan will receive serious consideration.

How have your constituents been affected by the malpractice liability insurance crisis?

The most direct and immediate effect on constituents has been the increased cost of physician services in all specialties. The cost of insurance has increased geometrically and these costs have been passed on to patients and third-party payers, resulting in increased costs of health insurance.

In addition to dealing with the higher costs of having a baby delivered, expectant parents across north Iowa are having to drive to cities in southern Minnesota for delivery if the baby is due after January 1, 1988 because Mason City obstetricians have told patients their services may not be available after that date. Because the media in this and other areas of the state have done a thorough job of explaining the problem, I find many constituents who are irritated with the General Assembly for failing to correct the problem.

Please outline tort reforms likely to be introduced during the 1988 legislative session.

This is difficult to predict. The only major piece I'm certain will be introduced is a plan I offered last year. This plan creates a patient compensation fund modeled after one that has been successful in Nebraska since 1976 and places a cap of $1,000,000 on damages. It is probable other legislators will introduce bills which cap non-economic damages at a variety of levels.

Who are the groups opposing significant tort reform and why do they oppose it?

People who call for "tort reform" must first define it so we all clearly understand the subject at hand. They must realize each restriction called for is regarded by many as a further curtailment of an individual's right to recovery of damages suffered.

Several groups have lined up in opposition to a hard cap — not just the million dollar cap, but the general concept of caps. Among those groups are the Trial Lawyers, the Iowa Bar Association, certain unions, the Iowa Citizen Action Network and the Iowa Civil Liberties Union — all groups with a strong tra-

dition of defending individual rights. Supporters of the million dollar cap I'm proposing must realize there have been settlements, though not court judgments, in excess of that amount. We have not yet satisfactorily addressed the question of what happens to those people.

What can physicians do to improve the chances tort reform will be enacted?

Educate! Educate! Educate! Physicians need to educate themselves, the media, the public and their local legislators about the effects rapid escalation of insurance costs has had on them, their practices and their relationships with patients. This information should be shared as openly and specifically as possible. Legislators can get local information only from local people.

What are the factors affecting whether or not significant tort reform will be enacted in 1988?

Physicians and related health professionals must initiate contact with their legislators, get to know them, share concerns and press for their support of legislative proposals that truly can make a difference. Leadership of both houses must be convinced that more than a majority of both houses will support the measures being brought forward. Even if leadership chooses not to support these bills, they must see the need for letting debate go forward.

An Historical Vignette

Community Life

In summarizing the life stories of the Iowa physicians interviewed for the Historical Committee, one of the most important revelations has concerned physicians' community life.

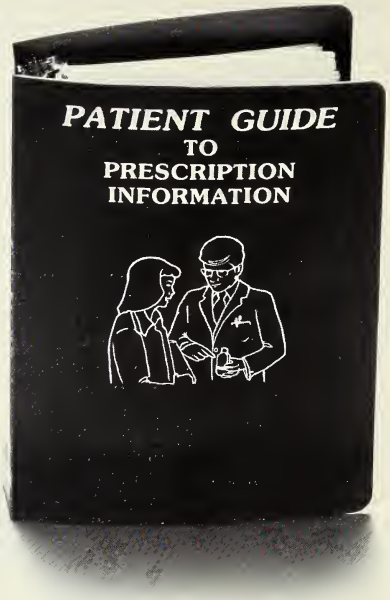
Almost without exception, physicians interviewed entered whole-heartedly into the community activities. Commonly it was serving on the local school board, library committee, city council and church organizations. Until a few years ago this volunteer work also included free examinations for the 4-H boys and girls and supervising immunization programs.

In the smaller counties the doctors took turns being the county coroner, now medical examiner. This was and still is largely a public service. These extra activities included county health boards and fund raising committees for numerous health fund drives. Early in World War II, doctors conducted free examinations for new recruits.

All these extra duties had to be worked into a busy life but were done willingly. The motivation for public service was a deep desire to better the community and to set a good example. The physician, along with the minister and other members of the learned professions, is a guide and an example, especially to young people.

Many of the physicians interviewed chose the study of medicine because when they were young they admired a doctor in their acquaintance. These men and women realized they held an important position in the structure of the community. It was not only their medical skill but their entire life pattern that counted. — *Clare A. Trueblood, M.D., Sun City, Arizona.*

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Intraoperative Radiation Therapy

LUIS F. URDANETA, M.D.,
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SHIRISH K. JANI, Ph.D., and
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Intraoperative Radiation Therapy (IORT) is a promising new technique for treating malignant solid tumors which cannot be controlled without radiation injury to surrounding normal tissues. The authors report on clinical trials of IORT at the University of Iowa College of Medicine and discuss the technique's potential for future treatment of malignant tumors.

OVER THE PAST SEVERAL DECADES, advances in radiation therapy have resulted in improvement in local control of many human cancers. Nevertheless, a significant number of malignant solid tumors still are not controlled with the treatment doses which are well tolerated by surrounding normal tissues. In an effort to improve local tumor control rates and keep radiation injury to normal tissues within acceptable limits, new radiation therapy techniques are being investigated. A promising new technique is intraoperative radiation therapy (IORT). This term is used to describe the irradiation of areas of malignant disease with an external beam of radiation during a surgical procedure.

IORT is used in the treatment of recurrent, unresectable, partially resectable and totally resectable malignant solid tumors.[1, 7] This technique is also used for radiation of microscopic residual disease and regional lymph node-bearing areas after a primary tumor has been completely resected.[8, 11]

The technique of IORT is not new. Like other recently revived techniques, it was first tried by American and European investigators in the pioneering days of radiotherapy.[12, 16] However, interest in this approach diminished with development of megavoltage radiation therapy equipment that could deliver high doses to deep tissues without the necessity of direct surgical exposure.

The current interest in IORT evolves from independent work by Abe and co-investigators at Kyoto University in Japan and Goldson and co-workers at Howard University in this country.[4, 17, 19, 20] There are several other institutions in the United States, including the University of Iowa, which use this technique to treat malignant solid tumors.[21, 22]

The advantage of this mode of therapy is the ability to directly irradiate surgically exposed areas of malignant disease while sparing the surrounding normal tissues. During a surgical procedure, an external beam of radiation is delivered to the exposed neoplasm in

The authors are associated with the Department of Surgery and the Division of Radiation Therapy, University of Iowa College of Medicine, Iowa City.

THE IOWA MEDICAL FOUNDATION HAS DESIGNATED THIS ARTICLE AS THE HENRY ALBERT SCIENTIFIC PRESENTATION FOR THE MONTH OF DECEMBER 1987



Figure 1. Methyl methacrylate (plexiglas) cones of various shapes, diameters and with the open ends beveled or flat.

a high radiobiologically effective dose and in a single fraction. (The biologic effectiveness of a high single dose is approximately 2 to 3 times greater than that of conventional fractionated irradiation.)[6, 23] High energy electrons are preferred because of the characteristics of the beam. Electrons have a homogeneous dose distribution with rapid fall-off in depth dose. This is essential in sparing normal structures which may lie posteriorly to the tumor mass being irradiated.

Since the tumor margins can be visualized and palpated, a more accurate beam direction can be selected, decreasing the irradiation field volume. By operative mobilization or shielding, surrounding normal tissues can be spared. This allows an increase of the "effective" dose to the tumor volume.[1, 21]

Indications for IORT have varied according to the philosophy of investigators using it. It is used for palliation in cases of unresectable or partially resectable cancers and for treatment of recurrent tumors.[1, 2, 10, 18, 21, 22, 24] It is also used as adjunctive treatment after radical surgical resection of a tumor and to treat the regional lymph node drainage areas after resection of a primary lesion.[9, 25] Several investigators in this country utilize intraoperative electrons as a "boost" dose in conjunction with conventional external beam irradiation.[6, 21, 22, 26]

The linear accelerator has proved the most satisfactory device for the delivery of IORT.[8, 20, 21, 26] Electrons produce almost uniform irradiation of a small block of tissue with minimal exit dose. Their depth of penetration can be tailored to the thickness of the tumor mass by adjusting the electron beam energy. The usual disadvantage of electrons, namely the lack of skin sparing, is of no concern with IORT because the skin is not traversed by the irradiation beam. The irradiation dose varies from 1,000 to 3,000 cGy, depending on the type of tumor and the indications for treatment. The entire selected irradiation dose is given in a single fraction lasting from 10 to 20 minutes.

At the University of Iowa, the room housing a 25 MeV linear accelerator has been remodelled with the addition of operating room lights, television cameras for patient monitoring and necessary equipment to deliver IORT and perform at least part of the surgical procedure.

The treatment is delivered through methyl methacrylate (plexiglas) cones of various shapes and diameters.[27] The open ends of the cones may be beveled or flat to conform to various anatomic situations in the patient (Figure 1). These cones are necessary to accurately localilze the treatment port and help retract the contiguous dose-limiting normal tissues out of the irradiation field.



Figure 2. Circular plexiglas cone attached to special adaptor and both connected to the electron source.

The plexiglas cone joins a special aluminum adaptor which is connected to the source of electrons. This adaptor has a built-in periscope with a light source, which permits visualization of the irradiation field.[27] Figure 2 shows a circular cone attached to the adaptor and both connected to the electron source in the intraoperative treatment position.

A review of the world literature revealed the technique of IORT is being used in the treatment of malignant tumors of:

- Gastrointestinal tract[2, 3, 8, 21, 26, 28-31]
- Biliary tract[2, 8, 18, 21, 24, 32]
- Genitourinary tract[8, 9, 21, 26, 33]
- Retroperitoneum[8, 21, 28, 29]
- Brain[8, 21, 34, 35]
- Lung and mediastinum[8, 21, 26, 36]

From the reported clinical studies using IORT in the management of malignant solid tumors, it can be said this technique is safe and effective for obtaining local tumor control and probably increases patient survival. Further studies are necessary to demonstrate its true and definitive role in cancer treatment.

The University of Iowa is a member of the Radiation Therapy Oncology Group (RTOG) which is investigating the use of intraoperative radiation therapy in the treatment of 6 different cancer sites. The intraoperative radiation therapy investigational protocols, which are open for patient entry, include patients with 1) Advanced inoperable or recurrent carcinoma of the rectum; 2) Recurrent carcinoma of the cervix; 3) Unresectable and localized adenocarcinoma of the pancreas; 4) Adenocarcinoma of the stomach; 5) Extrahepatic biliary carcinoma; and 6) Retroperitoneal sarcomas.

It is hoped at the completion of these clinical trials it will be possible to determine if this aggressive management of patients with solid tumors will prove beneficial in obtaining an increased rate of local tumor control, improving the disease-free interval and resulting in a longer patient survival. It is our strong belief patients with these diagnoses should be investigated for eligibility and participation in these investigational protocols.

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Toe to Hand Transfer as an Option For Thumb Reconstruction

JOHN G. GANSKE, M.D.
Des Moines, Iowa

A toe-to-hand transfer ("thoe") can be an effective means of reconstructing some amputations. The author presents a case history, discusses details of the surgery and compares the procedure to alternate types of reconstruction and replantation.

EXCELLENT THUMB FUNCTION can be attained by successful replantation of a severed thumb. However, the nature of the injury and the condition of the amputated part may preclude replantation. Dependent on residual thumb length, there are many ways to reconstruct a thumb. When the amputation is at the base of the proximal phalanx or through the metacarpophalangeal joint, the stump may be inadequate for pinch or grip. A toe-to-hand transfer ("thoe") should be strongly considered when the amputation is at this level.

Case History

In July, 1985, a 30-year-old, right-handed farmer and draftsman had his right hand sucked into the fan blade of a farm machine. This resulted in amputation of parts of all his right fingers. The amputated parts were shredded and could not be salvaged. After closure of the amputation stumps, the patient could not readily grasp a pencil as his thumb was amputated just distal to the MP joint (Figure 1).

In December, 1985, the patient had a right great toe-to-thumb free tissue transfer procedure. The structures repaired were: toe proximal phalanx to thumb proximal phalanx, dorsalis pedis artery to radial artery, saphenous vein to cephalic vein, toe digital nerves to thumb digital nerves, flexor hallucis longus tendon to flexor pollicis longus tendon and extensor hallucis longus tendon to extensor



Figure 1. Right hand with short thumb after closure of amputation stumps.

Dr. Ganske is a plastic surgeon practicing in Des Moines.



Figure 2. Harvested right toe showing extensor and flexor tendons, artery and vein.

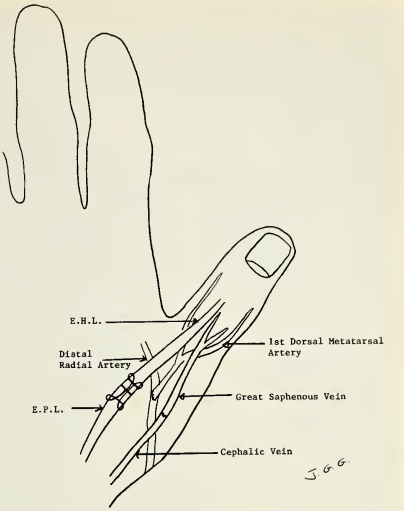


Figure 3

pollicis longus tendon (Figures 2-3).[1] The donor site was closed primarily.

One month postoperatively, the patient returned to draftsman work. After a year, the patient had 7-9 mm. static 2-point discrimination, 10 degrees motion at his interphalangeal joint, 47% grip strength and 57% pinch strength as compared to his left hand (Figures 4-6). There is no foot pain or gait disturbance (Figure 7). His vertical leap is mildly decreased, but jogging is unaffected. He is playing golf at his old handicap. The patient is now a full-time, right-handed draftsman (Figure 8).

Discussion

The functional requirements of the thumb include length and mobility to oppose other digits, stability without collapse, freedom from pain and adequate sensation. These requirements can be met for distal third thumb amputation reconstruction by a number of local flaps. Pollicization and osteoplasty have been commonly used procedures for proximal thumb reconstruction.

Pollicization, the movement of an adjacent finger to the thumb stump on a neurovascular pedicle, may still be the procedure of

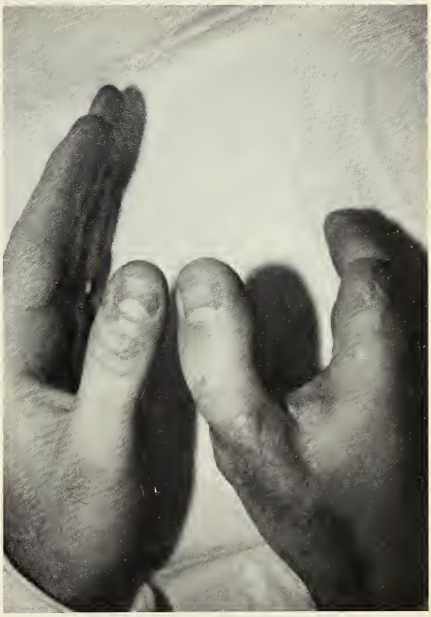


Figure 4

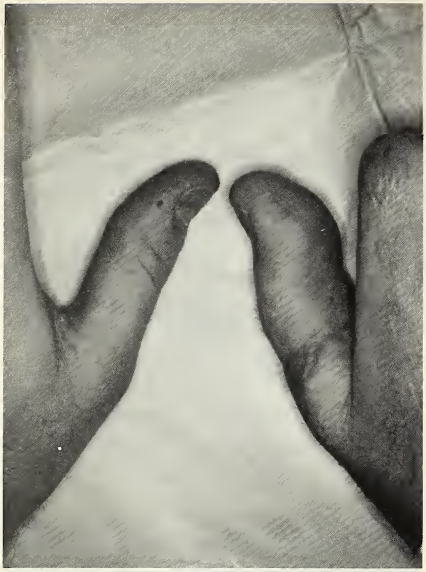


Figure 5



Figure 6

choice when the carpometacarpal joint is absent because osteoplasty and toe transfer provide a less effective basal joint. However, pollicization may not be advisable in a manual worker even when a shortened digit is available, because the narrowed hand can lose 50% grip strength and 20% prehensile strength.[2]

Osteoplasty uses a bone graft, tube pedicle and subsequent neurovascular island pedicle flap. It has 2 major drawbacks — the stability of the pulp is never normal and its appearance is less than optimal. Because of the poor cosmetic result and the lack of a good thin-skinned tube pedicle from an acceptable donor site, osteoplasty is usually not offered to women.



Figure 7

Toe transfers are effective for reconstructing amputations distal to the metacarpophalangeal joint. Unlike osteoplasties, the appearance is excellent and features a normal fingernail. Toe transfers may be the only choice when the other fingers are so short a pollicization or neurovascular island flap is not possible.

An additional benefit of toe transfer is the length of the reconstructed thumb can be tailored to the needs of the patient. The large toe is usually chosen, especially in male manual workers, because the great toe provides more powerful pinch. Also, the great toe carries more skin with it, whereas a second toe is denuded on the lateral aspects almost to the proximal interphalangeal joint. The large toe donor site can be closed with local skin and a skin graft on the foot is usually not necessary.

Preoperative assessment of the donor and recipient blood vessels by palpation and doppler studies is usually sufficient. However, if the hand has been extensively injured, an angiogram may be useful. Angiography of the foot is generally not helpful or necessary if the dorsalis pedis and posterior tibial vessels are normal by palpation and doppler. Obviously, a thorough knowledge of the foot anatomy is a prerequisite for successful harvesting of the toe.

If care is taken to avoid plantar incisions (such as cutting the flexor hallucis tendon via a postmalleolar incision) and skin grafts on the foot, complications related to the donor site can be minimized. Loss of the great toe will not affect normal walking but may reduce running speed and jumping ability.

Microvascular transfers of this type should have a 90% survival, power grip averages 28% of the normal hand, pinch grip averages 36% of normal and static 2-point discrimination is 10 mm or less in 75% of patients by two years postop.[3] This patient's parameters are all better than average one year postoperatively. Sensory return can be improved by using nerve that is free of scar, neurorrhaphy as far distal in the hand as possible, precise nerve alignment and sensory re-education.

Summary

Toe-to-hand transfer is an option that should be strongly considered in reconstruction of a thumb amputated at or just distal to the MP joint. It should result in a sensate, stable digit with an appearance superior to alternative types of reconstruction. Donor site morbidity is minimal.



Figure 8. Photo of scale model architectural mockup the patient constructed using box cutter held in right hand.

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2. Murray JF, *et al:* Transmetacarpal amputation of the index finger: A clinical assessment of hand strength and complications. *J. Hand Surgery,* 2:471, 1977.
3. Lister, GD, *et al:* Reconstruction of the hand with free microneurovascular toe-to-hand transfer: Experience with 54 toe transfers. *Plast. Reconst. Surg.* 71:372, 1983.

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Recent Experience with Iowa Maternal Mortality Review

DENNIS D. WEAVER, M.D.
San Antonio, Texas
MICHAEL W. VARNER, M.D.
Iowa City, Iowa

The Iowa Medical Society's Maternal Mortality Study Committee has been in existence since 1952. The review process used by this Committee is a major factor in educating Iowa physicians about maternal death. The authors discuss the causes and implications of 23 maternal deaths in Iowa from July, 1980 through December, 1986.

MATERNAL MORTALITY RATES in the United States have dropped dramatically during this century, from approximately 700/100,000 livebirths in the 1920s to approximately 10/100,000 livebirths. Rates in Iowa have always been below national averages. Many factors have been instrumental in the aforementioned decline, including improved blood banking, antibiotics and increased understanding and appreciation of pregnancy physiology and pathophysiology. Most authorities agree the maternal mortality review process has been a major educational factor in these declines. The Iowa Medical Society has had a Maternal Mortality Study Committee in continuous existence since 1952.

This article reports on the Committee's recent deliberations, to remind physicians of the Committee's existence and to provide educational feedback to Iowa's medical community.

Materials and Methods

Maternal death is the death of any woman who is pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy.

Causes of maternal death are divided into 3 groups:

- Direct Obstetric Causes — A maternal death resulting from obstetric complications of the pregnancy state, labor or puerperium and from interventions, omissions, incorrect treatment or chain of events due to any of these complications.
- Indirect Obstetric Causes — A maternal death resulting from previous existing disease or diseases that develop during pregnancy, labor or the puerperium. Such diseases may be aggravated by the physiologic effects of pregnancy but are not directly due to the pregnant state.
- Nonobstetric Causes — Maternal death resulting from accidental or incidental causes not related to the pregnancy or its management.

Dr. Weaver is a medical student member of the IMS Maternal Mortality Study Committee and a 1987 graduate of the University of Iowa College of Medicine. He is a resident in obstetrics and gynecology at Wilford Hall Air Force Base, San Antonio, TX. Dr. Varner was associated with the University of Iowa College of Medicine's Department of Obstetrics and Gynecology in Iowa City and is now on the faculty of the University of Utah in Salt Lake City.

TABLE 1

DISTRIBUTION BY MATERNAL AGE OF MATERNAL DEATHS IN IOWA: July 1980 - December 1986

Age	*Numbers of deaths*
<20	3
20-29	10
30-39	10
≥40	0
Range = 19-35 years	
Mean = 27.5 years	

TABLE 2

DISTRIBUTION BY GRAVIDITY OF MATERNAL DEATHS IN IOWA: July 1980 - December 1986

Gravidity	*Number of deaths*
1	5
2	8
≥3	5
Unknown	5

All cases were identified by a prospective review of death certificate diagnoses performed by the Iowa State Health Department. Potential maternal mortality cases were forwarded to the Committee for further evaluation. The Committee approached each attending physician and/or hospital for voluntary, anonymous participation. Medical records of each case were abstracted by the Committee secretary and reviewed by the Committee. The Committee includes 7 obstetricians, a pathologist, an anesthesiologist and a medical student. Confidentiality is assured and mandated by state code. A recent Attorney General's opinion also recommends any publication of committee deliberations avoid direct references to specific cases.

Results

Between July, 1980 and December, 1986, 23 maternal deaths were identified and reviewed. This includes 13 direct obstetric deaths, 5 indirect obstetric deaths and 5 non-obstetric deaths. Maternal age and parity are summarized in Tables 1 and 2. Six patients delivered vaginally, 8 delivered abdominally and 9 patients died undelivered. Eighteen of the 23 patients underwent postmortem examination. Of the 13 direct obstetric deaths, 5 were associated with preeclampsia/eclampsia, 4 with embolic phenomenon, 3 with hemorrhage and 1 with infection. The indirect deaths included 4 patients with acquired or congenital cardiovascular problems and 1 with a pre-existing psychiatric disorder. Nonobstetric deaths included 3 trauma related deaths and 2 patients with malignancies. The causes of death are summarized in Table 3. A total of 18 of the 23 maternal deaths (78%) were deemed by the Committee as preventable, including 10 of 13 direct obstetric deaths.

Maternal age and gravidity data suggest maternal mortalities in Iowa may involve younger and less parous women than in most maternal mortality reviews. The lack of comprehensive denominators precludes any definite conclusions. In addition, the number of pregnancy episodes per woman is decreasing, a fact that may further compound these figures.

Preeclampsia/eclampsia, embolic phenomenon and hemorrhage represent the major causes of maternal mortality in Iowa. Ten of the 13 direct obstetric cases were considered preventable by the Committee, suggesting there is room for improvement in patient education and compliance and physician education and performance.

The key to management of preeclampsia is early detection and prompt treatment. This demands careful observation at appropriate intervals, especially in women predisposed to preeclampsia (Table 4). The 2 most commonly identified causes of maternal death in which toxemia is the major contributor are intracranial events and congestive heart failure. These are often preventable if managed with the understanding of the pathophysiology of toxemia. This is supported in our data and other larger series and suggests careful attention be given to the cardiac and vascular status of such patients, especially if they are older and have other medical problems. Such patients can benefit from intensive central vascular monitoring and have optimum outcomes if managed in referral centers.

Pulmonary embolism has remained a major contributor to maternal mortality over the past few decades. It has been known for many years that pregnancy, and particularly the first

TABLE 3

CAUSES OF MATERNAL DEATHS IN IOWA:
July 1980 - December 1986

Direct		
Pre-eclampsia/ eclampsia	5	
Pulmonary	4	
Hemorrhage	3	
Infection	1	
		13
Indirect		
Cardiac	2	
Ruptured aneurysm	1	
Pulmonary embolism	1	
Suicide-postpartum depression	1	
		5
Non-Obstetric		
Trauma	3	
Malignancy	2	
		5
TOTAL		23

TABLE 4

CONDITIONS KNOWN TO BE ASSOCIATED WITH INCREASED INCIDENCE OF PRE-ECLAMPSIA/ECLAMPSIA

Nulliparity
Extremes of maternal age
History of pre-eclampsia/eclampsia in close female relatives
Maternal microvascular disease (e.g., insulin dependent diabetes, essential hypertension, renal disease)
Co-existent pregnancy complications (e.g., multiple pregnancy, hydatidiform mole, fetal hydrops, polyhydramnios)

TABLE 5

CONDITIONS KNOWN TO BE ASSOCIATED WITH INCREASED INCIDENCE OF PULMONARY EMBOLISM DURING PREGNANCY AND THE PUERPERIUM

Surgery (e.g., cesarean section, tubal ligation, significant vaginal surgery/lacerations, etc.)
Infection
Immobilization
Co-existent medical problems (e.g., cardiopulmonary insufficiency, malignancy, previous thromboembolic disease, etc.)
Soft-tissue injury, especially of the lower extremities

few weeks postpartum, increases the risk of thromboembolic disease. Other predisposing factors further increase this risk (Table 5). It now seems clear minidose heparin prophylaxis is effective and safe and should be utilized in selected cases. Early ambulation should be encouraged.

Although hemorrhage as a cause of maternal mortality has significantly declined, it remains a leading preventable contributor to maternal death in Iowa. The leading etiologies of maternal death due to hemorrhage include uterine atony, ruptured ectopic, amnionic fluid embolism and ruptured uterus. Although uterine atony was not seen during the study period, it is the most common hemorrhagic cause of direct obstetric death in Iowa over the past 35 years. The most common explanation is underestimation of actual blood loss. It must be remembered by the time a woman becomes symptomatic from a postpartum hemorrhage, she is almost always at least 2-3 units behind and requires immediate, intensive evaluation.

Ectopic pregnancy is also a significant contributor to maternal mortality statistics. Any woman of reproductive age with irregular bleeding and abdominal pain could have an ectopic pregnancy, especially if she has signs/symptoms of pregnancy and is symptomatically hypovolemic. Amniotic fluid embolism is rare, but remains a catastropic and frequently fatal maternal complication.

Uterine rupture is now an uncommon cause of maternal death. This is due to the appropriate decrease in classical cesarean section and the appropriate decline in complicated operative vaginal deliveries.

Presumably through improvement of education and training of physicians and nurses, increased access to blood banking and surgical facilities and use of aggressive surgical techniques, deaths due to obstetric hemorrhage can continue to decrease.

The 5 indirect obstetric deaths are reminders that pregnancy can significantly compromise pre-existing medical problems, particularly cardiorespiratory conditions. Patients with significant cardiac or pulmonary complications known to antedate the pregnancy are best managed by a multidisciplinary team in referral centers.

The 5 non-obstetric deaths reflect several of the most common causes of death in women of reproductive age. It is particularly important to encourage pregnant women to wear automobile safety restraints.

In conclusion, these data serve as a reminder human reproduction is still associated with appreciable mortality, even in this era of sophisticated medical technology.

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A Fond Farewell



THIS ISSUE OF IOWA MEDICINE marks the last that Polly Lynch will serve as assistant managing editor. Polly came to the Iowa Medical Society on September 21, 1966 to contribute to a very productive era in the annals of Iowa medical publications.

Polly has had a major part in the production of our Journal each month, as well as the annual task of editing the Iowa Medical Society Directory and the IMS House of Delegates Handbook. Her devotion to her duties has been accompanied by a personality that makes those around her feel good.

Though she is retiring from the Iowa Medical Society, Polly will continue to be a busy person. Her volunteer activities with the handicapped, her interest in her P.E.O. chapter and above all her daughter's family — especially 3-year-old grandson Brian — will provide many hours of fruitful activity.

We at IOWA MEDICINE, other IMS staff members and her hundreds of physician friends will miss her. We wish her well and, to use one of her favorite sayings, "Bless your Heart, Polly."

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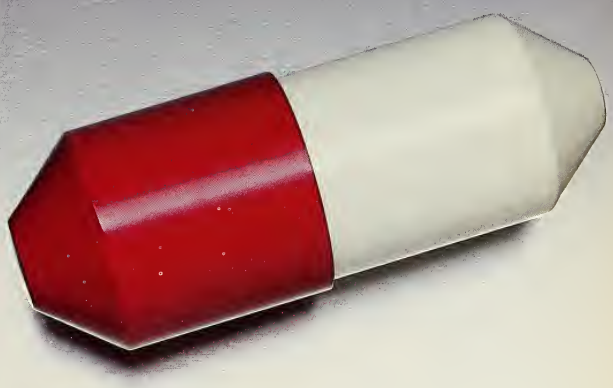
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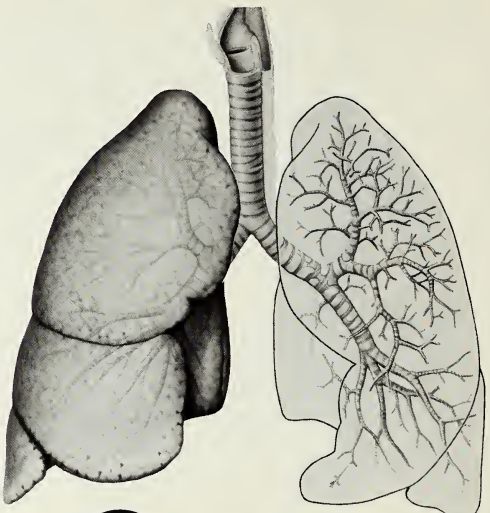
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- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
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Although your patients have to live with herpes, they shouldn't have to suffer. Daily therapy with ZOVIRAX CAPSULES can help free them from the cycle of recurrent genital herpes. For many, one capsule three times a day can suppress recurrences completely while on therapy.

Generally well tolerated

Daily therapy with ZOVIRAX CAPSULES is generally well tolerated. The most frequent adverse reactions reported during clinical trials were headache, diarrhea, nausea/vomiting, vertigo, and arthralgia.

The physical and emotional difficulties posed by genital herpes are unique for each patient. The frequency and severity of recurrent episodes, as well as the emotional impact of the disease, should be considered when selecting daily therapy with ZOVIRAX CAPSULES.

Please see brief summary of prescribing information on next page.



Prevent recurrences month after month*

ZOVIRAX® (acyclovir) CAPSULES

Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psycho-social difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: ***Teratogenic Effects:*** Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤ 10 ml/min/1.73/m^2.

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200" - Bottles of 100 (NDC-0081-0991-55) and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light.

*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.

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Richard M. Caplan, M.D.

CME Notebook



Cultural Literacy and the MCAT

YOU PROBABLY TOOK the Medical College Admission Test (MCAT) as part of your effort to enter medical school. Meant to provide admission committees a carefully prepared, nationally standardized, objectively-scored instrument, the test was developed several decades ago by the Association of American Medical Colleges to add uniformly obtained additional information to each candidate's file. It has found enormous use and abuse, while bringing assistance to the committees and anguish to hundreds of thousands of applicants through the years. One of the periodic revisions of the test format is about to begin, a fact I learned the same week I was reading the current best-seller, *Cultural Literacy* by Edwin Hirsch, Jr.

That book, written by an English professor at the University of Virginia, has sold an amazing number of copies, considering that it is an academic treatise criticizing current educational policy and urging a program of reform. Even though Hirsch's style is lively and clear, the book world has been baffled at its commercial success — but then, reformist literature always sells better, in an intellectually free climate, at times of public malaise. This isn't the place for an explication or critique of the book, but his thesis needs stating: American education of this century, through the enormous influence of Rousseau and Dewey, has tried hard to instruct children in the process of problem-solving (not such a bad goal). But as the effort evolved, it specifically attempted to avoid instruction about vocabulary, ideas and values that collectively define a sort of national *persona*. Hirsch argues it's impossible to learn *how* to think without ever learning a body of facts (such as the meaning of names like "Hamlet" or "Dickens," knowing when

". . . but then, reformist literature always sells better, in an intellectually free climate, at times of public malaise."

the American Civil War occurred — or why, or having insight into particular concepts like "molecule" or "checks and balances"). Even worse, trying to avoid such a constellation of terms and ideas denies our citizens a common universe of discourse that is essential for effective communication, community life and national continuity. Implementing his recommendations would transform our educational system, especially in the elementary grades.

When 2 planets appear to move into the same zodiacal zone, astrologers — and there remain an amazing number of them, both the "professionals" and their uncritical lay followers — grow excited about portents of meaning. I consider it hogwash. But when a MCAT revision begins at about the time that a stimulating work like Hirsch's arises, I wonder at their emer-

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gence from concurrent, interrelated socioculture factors (just as the intellectual and social revolutions of Copernicus and Vesalius appeared in the same year [1543], soon after that of Martin Luther [1517]).

The MCAT used to contain a section called "general information." For example, if you knew Michael Faraday was a famous physicist and not an eminent composer, or that Eskimos

"Cultural literacy is important not only for the elementary grades, but also to medical education and practice."

did not live south of the Tropic of Capricorn, you might score better than if you didn't know. The MCAT dropped that portion in its latest revision (1977). The reasons centered on the finding that that portion of the MCAT correlated, and therefore predicted, very poorly whether a student would succeed in the preclinical course work that uniformly introduced the study of medicine since the 1910 Flexner report. It's understandable, I think, that such a test would not predict that. Yet, I have considerable faith that knowledge of humanity and its story is very important to the sort of communication that makes doctors and patients understand each other and get along well together. The test's true effectiveness therefore must be measured not in the first years of medical school but many years beyond. I think it unlikely that such validity investigations could be undertaken, however, and therefore the matter would have to remain an article of faith.

Another reason for dropping that general information test related to an alleged (and likely true) cultural bias that worked to the considerable disadvantage of "minority group" applicants whom we might wish would enter medicine. (Hirsch argues that it is precisely the lack of acquaintance with the core vocabulary, information, and values which permanently prevents such individuals from entering the mainstream of American life and upward mobility.) I suggest, however, that a test could be built that would contain items answered readily by minority students but that you or I would likely fail; thus — although it might not be easy — the "elitist bias" could be alleviated or even corrected.

A final consideration regarding a test of this kind is a subtle psychological one, but I think a real one. When the test of general information was dropped from the MCAT, I believe that was often interpreted by medical school faculties, premedical advisors, and the students themselves to signal that the kinds of broadening courses in the humanities and the arts, which might tend to provide the sort of information that would be sought by such a test, were not really important in the preparation for medicine and its practice. Consequently, students with such an understanding of the real world would be likely to choose more technical, bioscientific courses to the detriment of humanistic studies, the lack of which is now being increasingly lamented by formal studies and many writers. I think the time has come to retract that previous unfortunate "message" in a way that will be clear to students, parents, premed advisors, premedical faculties, and medical school faculties.

Cultural literacy is important not only for the elementary grades, but also to medical education and practice.

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U. of I. College of Medicine

THE INTERNATIONAL EFFORT TO STOP THE SPREAD OF AIDS includes the work of a University of Iowa public health expert. **Jane Getchell,** assistant director of the UI Hygienic Laboratory, spent a week in the West African country of Sierra Leone in June advising on laboratory needs for AIDS blood testing and developing education plans for health care workers. Getchell is one of 40 health consultants invited by the World Health Organization (WHO) to visit underdeveloped countries and set up AIDS control programs. Getchell and 2 other WHO consultants met in Freetown, the country's capital, and as a result of their recommendations, WHO is providing $131,000 and support staff to implement the initial phase of Sierra Leone's AIDS control project.

RISKS FOR 5 SPECIFIC BIRTH DEFECTS are not increased by exposure to spermicide contraceptives in the first 4 months of pregnancy, at the time of conception or at any time before conception, a study by Boston University and UI researchers shows. ***James Hanson,*** *Pediatrics, and co-investigator in the study and his co-workers in the Iowa Health Registry collaborated with investigators at Boston University to conduct a large case-control study of about 4,580 women who had infants with malformations to study the possible association between vaginal spermicide use and the occurrence of 5 birth defects: Down's syndrome; hypospadias; absence of limbs; nervous system tumors and spina bifida. Such defects previously were reported to occur with higher frequency among women who had used spermicides within 20 months of delivery.*

AT-A-GLANCE . . . Department Head Francois M. Abboud, Internal Medicine, was appointed to a 3-year term on the Board of Governors of the American Board of Internal Medicine, effective July 1, 1987. The board oversees the certifying examinations given annually to physicians who plan to practice internal medicine. In 1986 a record number of candidates — over 8,000 — took the board examinations. . . . **Ross D. Feldman,** Internal Medicine and Pharmacology, is the recipient of a major Burroughs Wellcome Clinical Pharmacology Scholar Award for 1987. The award recognizes and supports Feldman's investigation of factors that regulate blood pressure and the changes of the body's circulatory system with advancing age, and specifically the regulation of receptors. **Robert F. Ashman,** Internal Medicine, was elected a member of the Association of American Physicians. . . . **Lloyd J. Filer Jr.,** Pediatrics, has been designated a 1987 Fellow by the American Institute of Nutrition, for his outstanding work in the field of nutrition. Filer has conducted research in the areas of infant nutrition, food additives, vitamin E and the relationship between salt intake and hypertension.

GRANT NEWS . . . ***Donald Heistad,*** *Internal Medicine, is principal investigator for a major new Program Project Grant on Cerebral Blood Vessels funded by the National Institutes of Health. The goal of the 5-year, $4 million grant is to examine and explain the basic mechanisms responsible for the regulation of the cerebral circulation. . . .* ***Kevin P. Campbell,*** *Physiology and Biophysics, was awarded a $600,000 National Institutes of Health grant to study the structure and function of the calcium channel responsible for the release of calcium within heart muscle cells. . . . A $1 million grant has been awarded to* ***Donald Downing,*** *Dermatology, for the investigation of barrier properties of fatty materials in human skin.*

NEUROLOGY RESEARCHERS AT THE UI are part of a nationwide team studying the drug therapies that may slow or halt the further development of Parkinson's disease in patients who show its early signs and symptoms. **Robert Rodnitzky,** Neurology, says the $10 million, 5-year grant from the National Insti-

tutes of Health, involves 27 other medical centers in the United States and Canada. The clinical study will attempt to determine whether the use of the drugs deprenyl and tocopherol, either alone or in combination, will slow the nerve cell death that underlies the progressive decline associated with Parkinson's disease, Rodnitzky says. For more information about the study, contact Rodnitzky at (319) 356-3424.

A DISTINGUISHED ALUMNI AWARD was given to ***Johann Ehrenhaft,*** *Surgery, this spring. The award, from the UI Alumni Association, honors UI graduates or former students for accomplishments in business or professional life or distinguished service in community affairs at local, state or national levels. Ehrenhaft designed and constructed one of the first heart-lung machines for use during open-heart surgery and used the pump for the first time in 1956. He supervised the training of 53 thoracic and 18 vascular surgeons and seven special fellows. He retired in 1986.*

HOW PRIMARY CARE PHYSICIANS IDENTIFY AND CARE for children with attention deficit disorders (ADD) is the subject of a UI study funded by a 3-year, $380,000 grant from the National Institute of Mental Health. **Mark Wolraich,** Pediatrics, is principal investigator of the study, and says the study will examine the characteristics of children diagnosed by their primary care physician as having ADD. The results could affect the way family physicians and pediatricians are educated and trained with respect to diagnosing these disorders.

This report has been compiled by the University of Iowa Health News Service.

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Drug Therapy Review

JOHN E. KASIK, M.D., Editor

Holiday Hazards

As the winter holidays approach, a multitude of decorations are displayed in homes often within an inquisitive child's easy reach. In addition to holiday decorations, there are many plants, foods and beverages, certain toys and other items more commonly available in the home during the holidays. Most but not all of these materials do not contain toxic chemicals or are minimally toxic in the usual small amounts ingested. Nevertheless, parents and health professionals can prevent accidents and respond appropriately should they occur by becoming familiar with the toxicology of holiday decorations and other items associated with the holiday season.

The purpose of this article is to point out some of the potential toxic hazards associated with the winter holiday season and to also dispell some of the myths of severe toxicity from items that actually pose little or no risk.

Plants

Serious injury following plant ingestions in children is rare. This is true for most common house plants as well as most plants displayed primarily during the holidays. A few, however, are potentially severely injurious if consumed in sufficient quantity. The literature discussing plant poisoning typically consists of isolated animal and human case reports or experimental data from administering purified plant toxins to test animals. This information cannot be extrapolated to fit the usual few berries, leaf or flower ingested by a child. Specific toxic doses of individual plants are not known. Toxicity of many plants has frequently been overstated because of isolated case reports. The most effective way to prevent accidental ingestion of a toxic plant by a child is, of course, not to bring them into the home. Even if the plant is placed high out of the child's reach the berries and leaves can fall to the floor as they dry out.

Some of the most common holiday plants and their potential for toxicity are described here.

American mistletoe *(Phoradendron flavescents)*, and **European mistletoe** *(Viscum album)*, are perhaps the most toxic holiday plants. Phoratoxin in American mistletoe, viscotoxin in European mistletoe, and other toxins in these plants are potent gastrointestinal irritants. Profound gastroenteritis followed by hypovolemic shock and cardiovascular collapse was reported by Moore in a 28-year-old woman following ingestion of tea brewed from the white berries of American mistletoe. Both the leaves and berries contain toxin. Ingestions of 1 to 3 berries does not appear to be hazardous; however, in the absence of specific data, persons ingesting more berries or unknown amounts should undergo gastrointestinal decontamination with ipecac syrup and activated charcoal. Additional treatment is supportive. Mistletoe currently marketed may be the natural plant or plastic. Plastic berries may also be incorporated into the natural foliage.

This information for Iowa physicians is furnished and sponsored by the University of Iowa Hospitals and Clinics.

Poinsettia *(Euphorbia pulcherrima)*, has the most undeserved reputation for toxicity of any common house plant. This reputation is most likely based on one case report. In 1918, a child died in Hawaii after ingesting what was believed to be a poinsettia. Correct identification of the plant is in doubt and no additional reports are available. Gastrointestinal upset may occur following poinsettia ingestion, but usually no symptoms develop. Emesis induced with ipecac syrup or administration of activated charcoal are not necessary.

Jerusalem cherry *(Solanum pseudocapsicum)*, contains solanocapsine in the orange berries and foliage. The toxin causes nausea, vomiting and systemic anticholinergic symptoms if eaten in quantity. Small amounts (e.g. 1 to 2 berries) usually cause no symptoms. Gastrointestinal decontamination is recommended if a larger dose is suspected.

Holly *(Ilex sp.)*, leaves and berries contain ilicin which is a potent gastrointestinal irritant. No specific toxic dose is known but gastrointestinal decontamination is recommended following ingestion of more than 1 or 2 berries. Most commercial holly is artificial, composed of plastic.

Several other plants are also reported to be gastrointestinal irritants including: **Christmas berry tree** *(Schinus terebinthifolius)*, **Christmas rose** *(Helleboras niger)*, **Ivy species,** and **Boxwood** *(Buxus sempervirens)*. Toxic doses are unknown. **Christmas tree needles** can cause trauma to tissues if ingested, but are not toxic in small amounts. **Christmas cactus** *(Schlumbergera bridgesii* or *Zygocactus truncatus)*, and **Bayberries** *(Myrica pensylvanica)*, are not toxic.

Holiday Decorations

The Christmas tree usually contains the greatest concentration of holiday decorations. Few are actually toxic, but many may cause cuts or airway obstruction if mishandled by small children. Lead is present in several older ornaments, but they are not a reported source of lead poisoning in pediatric patients. Metallic lead is poorly absorbed from the gastrointestinal tract and requires prolonged intake to significantly raise the body lead burden. A single ingestion of small amounts of lead is not toxic, but of course should be avoided when possible.

Tree ornaments are typically composed of metal, glass, plastic, styrofoam, fiberglass or wood. Family heirloom ornaments frequently contain lead in the paint, but it is unlikely to be present in newer ornaments. Injury from cuts or mechanical obstruction is the only real hazard from tree ornaments.

Very old **tinsel and glitter** consists of 40% tin and 60% lead. Newer products are composed of aluminum coated polyvinyl chloride. Either form (new or old) is not toxic following a single ingestion.

***"Poinsettia* (Euphorbia pulcherrima), has the most undeserved reputation for toxicity of any common house plant. This reputation is most likely based on one case report."**

Decorative foods frequently are painted with shellac or varnish. The dried resins and polymers remaining after the petroleum solvents evaporate are not toxic.

Snow sprays and **tree flocking** contain wax and long-chain fatty acids. Borates and ammonia salts may also be present as fire retardants. Approximately 5 grams or more of boric acid is toxic in a child and can cause gastroenteritis and possibly kidney damage; however, with the low concentrations found in these products no ill effects would occur from amounts possibly ingested.

Christmas light bulbs may cause thermal burns or cuts from broken glass. Bubbling lights contain methylene chloride or an alcohol which can be irritating to skin and mucus membranes. If ingested, methylene chloride would likely cause intense mucous membrane irritation and could cause chemical pneumonitis if aspirated; but insufficient volume is present in these lights to cause systemic toxicity. Medical evaluation may be needed if coughing or burns are present following exposure.

Commercial **Christmas tree preservatives** which contain sugars or fertilizer in small amounts are not toxic.

Candles made of natural or synthetic wax are also not toxic. Neither coloring or scenting

(Please turn to page 614)

agents are present in an amount large enough to be toxic, but of course if improperly handled, candles pose a fire hazard.

Other Potential Holiday Hazards

Several miscellaneous household products are used more frequently during holidays. **Ethanol** particularly in beverages can be extremely hazardous to small children. Ethanol doses over 1 ml per kg body weight cause central nervous system depression, nausea, vomiting, incoordination, diuresis and respiratory depression. Hypoglycemia and subsequent convulsions may occur in children particularly in the absence of other recent carbohydrate intake.

Fragrances and **flavoring extracts** used in candle making and holiday cooking contain aromatic essential oils in high concentrations. They irritate skin and mucous membranes. Central nervous system depression, seizures, liver and kidney damage are reported with various compounds in this group. Small quantities present in candles, foods and other fragrant items are not toxic. However, following ingestion of the concentrates, a demulcent (e.g. milk) may be given or if large amounts are ingested medical attention may be needed.

Color crystals (provide brilliant colors when burned in the fireplace) and fabricated fireplace logs contain metallic salts. These may be corrosive or irritating if ingested in concentrated forms. Small quantities present in logs are non-toxic.

Children's **toys** should be properly selected for the child's age and should be examined for sharp edges, breakable glass or plastic parts and small parts that could come off. Toys with flying objects such as arrows, darts, or missiles may present a hazard for injury to the eye as well as possible obstruction or aspiration. Liquids and powders in children's toys are rarely toxic.

Although not a holiday decoration, **miniature batteries,** commonly called button or disk batteries, are available more frequently during the holiday season. They power watches, photographic equipment, calculators, electronic equipment and some toys. These batteries contain 26 to 45 percent sodium or potassium hydroxide and salts of mercury, silver, manganese or zinc. Most ingested miniature batteries traverse the gastrointestinal tract uneventfully. Complications (e.g. perforation, burns) are uniformly associated with batteries becoming lodged, predominantly in the esophagus. Esophageal impaction is nearly always associated with batteries larger than 23 millimeters (about the size of a quarter) and occasionally with batteries 12 millimeters (about the size of a dime) and smaller. Batteries may also become lodged in the nose and ears. Corrosion around the battery seal and subsequent alkali leakage causes tissue necrosis, and corrosive burns to surrounding tissues. Following ingestion, prompt x-ray localization to exclude an esophageal location is recommended. Tissue damage occurs within a few hours when the battery is impacted. Batteries in the stomach or intestine usually pass uneventfully, however if not found in the stools in a few days or if abdominal pain occurs, follow-up is needed.

The holidays are a happy and wonderous time especially for small children with many new and exciting things to explore. Hectic holiday preparations and disruption of the normal household routine can also lead to less supervision of the curious toddler. Careful selection, handling, and location of holiday decorations and other holiday items along with appropriate supervision of children, can limit the risks for accidental poisoning. If a potential poisoning occurs during the holiday season or any other time of the year, the victim's physician or the Poison Control Center should be contacted immediately. — PHILLIP G. LANGE, PHARM. D., *Clinical Pharmacist, Drug Information/Poison Control Center* and KEVIN MOORES, PHARM. D., *Supervisor, Drug Information/ Poison Control Center, Department of Pharmacy.*

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Iowa Department of Public Health

The Governor's Alliance on Substance Abuse

SUBSTANCE ABUSE is an issue that crosses many boundaries, affecting people from every socio-economic, religious and ethnic background. Government usually approaches the issue from 2 aspects: supply and demand. Various programs have been developed to deal with the demand side of the problem. As a result of recent federal legislation, additional resources have been targeted for both aspects of this problem. The Governor's Alliance on Substance Abuse (GASA) was created to coordinate activities in both areas.

The GASA was created in the fall of 1986 to promote comprehensive and coordinated statewide services for alcohol and drug abusers. The GASA focus is prevention, intervention and treatment and development of programs which enhance the justice system's response to the drug-involved offender. The mission of the Alliance is to address the substance abuse problem in terms of supply and demand.

Prevention, Intervention, and Treatment

The purpose of Iowa's prevention programs is to discourage use or abuse of controlled substances. Twenty-five prevention programs served 178,000 individuals in Iowa in FY 1986.

Preventing the cycle of chemical dependency through effective intervention and treatment programs reduces the demand for various drugs and alcohol. The Iowa Department of Public Health, Division of Substance Abuse and Health Promotion, funds 29 treatment programs which provided services to 25,000 abusers in FY 1987.

Data collected by the state indicate Iowa's young people need special attention regarding substance abuse. Though studies suggest substance abuse by Iowa's youth may be on the decline, there is a significant number of juveniles in need of treatment. There are only 184 juvenile residential beds in the state.

Close to 30% of those children in the juvenile justice system have a substance abuse problem. Over 50% of those are boys in the State Training School. Treatment and intervention services have been lacking for these populations.

The Alliance awarded $287,000 in grants in 1987 to programs which focus on juveniles. The High Risk Youth Program provides federal funds to projects which intervene with youth at risk. Additional funds have been awarded for prevention projects in schools, employment training for delinquents and support groups for children who have been through treatment or whose parents are substance abusers.

Narcotics Control

Over 31% of referrals to a treatment program in FY 1986 came through criminal justice agencies, the largest single referral source to the state's treatment programs. Most of those referred to treatment were offenders placed on probation or parole.

The criminal justice system plays a key role in referring individuals to treatment. The criminal justice system also plays a major role in controlling the supply of drugs.

In the spring of 1987, the GASA formed the Narcotics Control Task Force to assist with assessing the state's drug control problems and, more importantly, assist with preparing a narcotics control strategy. The task force is composed of representatives from all segments of the criminal justice system and treat-

(Please turn to page 616)

This information on public health matters is furnished and sponsored by the Iowa Department of Public Health.

IOWA DEPARTMENT OF PUBLIC HEALTH

(Continued from page 615)

ment and health professionals. This cross section of federal, state and local decision makers made possible the collection of a large variety of data for assessment and strategy development. In addition, over 1,500 criminal and juvenile justice professionals were surveyed to provide input on the narcotics control issue.

The following problems were identified by analyzing the data collected:

1. Cocaine Use is Increasing

- the arrest rate for adults in possession of cocaine increased 50% between 1976 and 1985.
- for the first 9 months of FY 1987, the number of those in treatment for cocaine addiction increased 4 fold over the previous year.

2. Drug Dealers Are Moving into Rural Iowa

- law enforcement officers surveyed noted drug crimes have become more frequent in rural areas over the past 5 years.
- intelligence data from the state DCI shows increasing drug trafficking in rural counties.

3. Marijuana Use is Widespread

- possession of marijuana accounts for the largest portion of drug related arrests in 1985 (86% of all adult arrests and 94% of all juvenile arrests).

October 1987 Morbidity Report

Disease	Oct. 1987 Total	1987 to Date	1986 to Date	Most Oct. Cases Reported From These Counties
AIDS	2	31	18	NA
Amebiasis	10	33	48	Scattered
Brucellosis	0	3	1	
Chickenpox	119	7722	6768	Scattered
Campylobacter	36	248	313	Scattered
Cytomegalovirus	4	25	17	Des Moines, Johnson, Polk
Eatons Agent Infection	9	54	19	Scattered
Encephalitis, viral	4	12	21	Black Hawk, Fayette, Polk, Woodbury
Erythema Infectiosum	7	887	262	Scattered
Gastroenteritis (GIV)	2013	13248	13689	Scattered
Giardiasis	62	360	340	Scattered
Hepatitis, A	7	91	39	Scattered
Hepatitis, B	7	102	76	Scattered
Hepatitis, Non A-B	1	26	25	Cherokee
Hepatitis type unspecified	1	6	1	Dickinson
Herpes Simplex	116	1011	1065	Scattered
Herpes Zoster	0	2	0	
Histoplasmosis	1	13	19	Polk
Infectious mononucleosis	12	150	193	Scattered
Influenza, lab confirmed	0	67	247	
Influenza-like illness (URI)	4756	30236	76322	Scattered
Legionellosis	4	10	13	Jackson, Johnson, Polk
Malaria	1	5	1	Johnson
Meningitis aseptic	12	66	43	Scattered
bacterial	7	69	76	Scattered
meningococcal	0	3	11	
Mumps	13	414	34	Scattered
Pertussis	14	55	19	Scattered
Rabies in animals	13	231	163	Scattered
Reye Syndrome	0	1	1	
Rheumatic Fever	0	3	6	
Rubella (German measles)	0	1	1	
Measles	0	0	134	
Salmonellosis	16	155	258	Scattered
Shigellosis	30	84	18	Scattered
Toxic Shock Syndrome	0	5	8	
Tuberculosis total ill	4	37	46	Black Hawk, Kossuth, Polk, Scott
bact. pos.	4	37	42	Black Hawk, Kossuth, Polk, Scott
Typhoid Fever	0	0	1	
Venereal diseases				
Gonorrhea	331	2513	3338	Scattered
Chlamydia	392	3051	2169	Scattered
Syphilis	4	25	8	Keokuk, Marshall, Page, Polk

Other Non-Reportable Diseases: Entervirus — 1, Polk; 1, Cerro Gordo; Ureaplasma Urealyticum — 8, Johnson; Lyme — 1, Clayton.

- the street price of marijuana has doubled over the past 2-3 years, reflecting a continued high level of demand.
- most clients treated in substance abuse programs continue to cite marijuana as their primary drug of choice (aside from alcohol).

4. Lack of Programs for Community Based Corrections (CBC)

- up to 80% of Iowa's correctional population has a substance abuse problem.
- linkages between CBC offices and treatment programs need to be improved.

5. Lack of Programs in State Prisons

- up to 80% of the state's prisoners have a substance abuse problem. The number of intensive treatment programs for prisoners is minimal.

6. Lack of Programs for Juveniles

- over 60% of the juveniles at the state training school and state juvenile home have a history of substance abuse.
- a study of the Department of Public Health identified a need for additional juvenile residential treatment beds.

7. Monitoring Illicit Pharmaceuticals

- there is no system of monitoring the impacts of illicit pharmaceutical use.

In order to address these issues, the GASA will be awarding over $2 million in grants made available through the Anti-Drug Abuse Act passed by Congress in 1986. Iowa will use these funds primarily for projects which focus on the apprehension, prosecution and adjudication of drug offenders. In addition, some of these funds will be used to enhance programs which treat and rehabilitate drug dependent offenders. The Alliance will closely monitor and assess what impact this effort will have on drug problems in Iowa. Preliminary evaluation results should be available in November 1988.

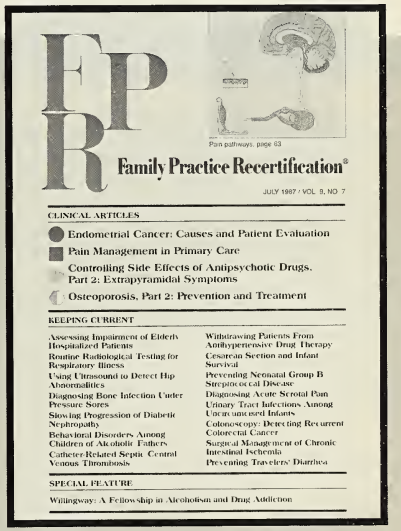
For more information, contact the Governor's Alliance on Substance Abuse: 515/281-4518.

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Medical News/Products and Programs

NEW DRUG ABUSE TEST — Roche Diagnostic Systems (RDS), a division of Hoffmann-La Roche Inc., recently announced the availability of Abuscreen® EIA, a new line of diagnostic tests used to detect drugs of abuse in urine. Abuscreen® EIA consists of four individual tests for cocaine, THC (the active ingredient in marijuana), barbiturates and morphine. "Crack," an extremely addictive form of cocaine, can also be detected by the new test. The new test is simple to perform and can be operated on the COBAS® RESA™ system available from Roche. The Abuscreen® EIA method takes less than 20 minutes (slightly longer for THC) and is performed entirely in one test tube.

PAGET'S DISEASE INFO — A new educational booklet is available to the medical profession on the long term management of Paget's Disease of Bone. Free copies of the pamphlet "Five Specialists Discuss the Long-Term Management of Paget's Disease of Bone," are available from Norwich Eaton's medical and hospital sales representatives or by writing to Norwich Eaton Pharmaceuticals, Inc., Marketing Department, 17 Eaton Avenue, Norwich, New York 13815.

Recent Books

Slavitt, David R., 1987, *Physicians Observed*, Doubleday, New York, New York 10167. $17.95. Behind-the-scenes observations by a teacher, critic, journalist who married into a family of physicians including his wife, father-in-law, brother-in-law, and daughter. His unique position enables the writer to view the physician's goals, motivations, pressures and frustrations. The non-physician can gain a fresh insight to the medical world, while the physician reader receives a flashback of experiences from entrance into the medical arena to the joys and sorrows of the practice of medicine.

Case Western Reserve University School of Medicine, 1987, *Primary Care of Cancer; Recommendations for Screening, Diagnoses, and Management*. Office of Community Health, Case Western Reserve University School of Medicine, 2119 Abington Road, Cleveland, Ohio 44106. $15.00. This work of more than 60 physicians, contains 212 pages of readily accessible material of considerable interest to the primary physician. It contains the currently recommended procedures for screening, diagnosis, and management of the 28 most common types of cancer. Treatment is discussed for the purpose of helping the primary care physicians care for their patients following referral to a cancer specialist. The discussions are concise, factual and as up-to-date as any publication can be once through the printing process and final availability to the reader.

Levine, Stephen, 1987, *Healing Into Life and Death*, Anchor/Doubleday, New York, New York 10167. Paperback, $8.95. The author discusses his concepts of a holistic approach to pain, sickness and death through medication and exercise. Should help physicians understand non-medical concepts often embraced by their patients.

Shorter, Edward, 1987, *The Health Century*, Doubleday, New York, New York 10167. $21.95. This documentary serves as a companion to the four-part P.B.S. Series which began on September 21. A century of medicine is reviewed. Though not a complete history of medicine, it is an interesting overview of the great advances of the past century.



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About Iowa Physicians

Dr. Roy Pitkin, head of the Department of Obstetrics and Gynecology at the U. of I. College of Medicine, has accepted a similar position at the University of California in Los Angeles. Dr. Pitkin received the M.D. degree at the U. of I. College of Medicine; completed his internship and residency at King County Hospital in Seattle, Washington and the University of Iowa Hospitals. He joined the U. of I. College of Medicine faculty in 1972. **Dr. Gary Peasley,** Marshalltown, has been elected president of the State Board of Health. Dr. Peasley has served on the Board for 2 years. He succeeds Dr. Lloyd Holm, Fort Dodge, as head of the Iowa group. **Dr. Eugene L. Johnson,** LeClaire, and **Dr. Robert T. Guthrie,** Waterloo, were named fellows of the American College of Radiology at the group's recent annual meeting. **Dr. Joel D. Teigland,** retired Des Moines physician, was presented the "Fellow Distinguished," award at the annual meeting of the American College of Allergy and Immunology. Dr. Teigland has served on the Board of Regents of the College, as secretary of the organization and on numerous committees. **Dr. John C. DeMeulenaere** has retired from medical practice in Grinnell. Dr. DeMeulenaere received the M.D. degree at the University of Iowa College of Medicine and completed his family practice residency in Detroit, Michigan. He began family practice in Grinnell in 1947. **Dr. Roy Doorenbos** will as-

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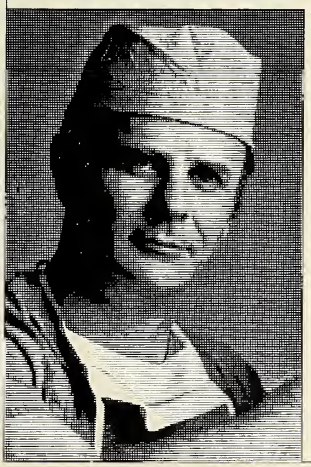
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sume Dr. DeMeulenaere's practice. Dr. Doorenbos received the M.D. degree at the U. of I. College of Medicine and completed his family practice residency at Marquette, Michigan. **Dr. Enrico Melson** recently began medical practice at the Mesquakie Settlement in Tama County. Dr. Melson will practice medicine at Tribal Health Services in the tribal center. He received the M.D. degree at the University of California at Irvine and prior to locating in Tama County, Dr. Melson was a physician for the Sonoma County Indian Health Project in California. **Dr. Steven J. Rosenberg** has joined **Dr. Harlan K. Rosenberg** and **Dr. William R. Hornaday, Jr.,** at Urology Associates in Des Moines. Dr. Rosenberg received the M.D. degree at the U. of I. College of Medicine and completed his urology residency at University of Iowa Hospitals and Clinics.

Dr. Felix Edward Gonzales has opened an otolaryngology practice in Fort Dodge. Dr. Gonzales received the M.D. degree at the University of Minnesota School of Medicine in Minneapolis and served his otolaryngology residency at the University of California, Irvine. **Dr. Bodo Treu** has joined **Dr. Donald Soll** at the Denison Medical Clinic. Dr. Treu received the M.D. degree at the University of Nebraska College of Medicine in Omaha and completed his family practice residency at Hennepin County Medical Center in Minneapolis, Minnesota. **Dr. George E. Drake** has joined **Dr. James O. Brown, II,** in Carlisle. Dr. Drake received the M.D. degree at Michigan State University College of Human Medicine at East Lansing, Michigan. **Dr. Laurence J. Baker,** Des Moines, has been named president-elect of the American College of Emergency Physicians, Iowa Chapter. **Dr. Vernon H. Plager,** Waterloo, has retired from medical practice. Dr. Plager received the M.D. degree at the U. of I. College of Medicine; interned at Harper Hospital in Detroit, Michigan; and completed his obstetrics and gynecology residency at Woman's Hospital in Detroit.

HERE'S ONE DOCTOR WHO WON'T PAY HIS MALPRACTICE PREMIUMS THIS YEAR.



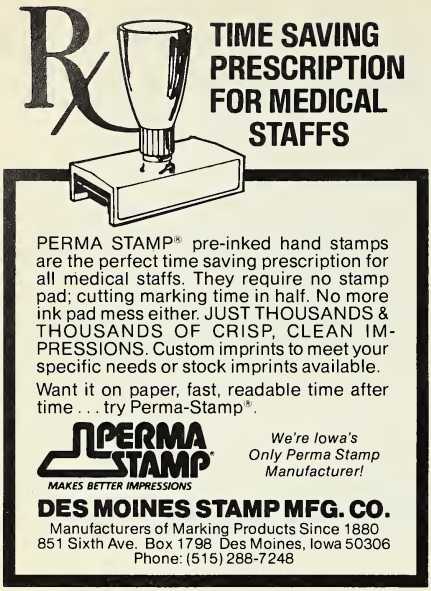
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Dr. Harvey Benveniste has joined the staff at Fort Madison Community Hospital. Dr. Benveniste received the M.D. degree from Chicago Medical School and served his residency at Cedars Sinai Medical Center, Los Angeles, where he has been in private pediatric practice. Three physicians have joined the Mercy Hospital staff in Council Bluffs — **Drs. Chris R. Link, Gary Volentine and Michael K. Zlomke.** Dr. Link received the M.D. degree from Kansas University School of Medicine and completed his residency in anesthesiology at St. Louis University Hospitals in Missouri. Dr. Volentine received the M.D. degree from the U. of I. College of Medicine and served his residency and Fellowship at the University of Nebraska Medical Center. Dr. Zlomke received the M.D. degree from the University of Nebraska College of Medicine and completed his residency at Rush-Presbyterian-St. Luke's Medical Center in Chicago. **Dr. Craig C. Schultz,** Dubuque, **Dr. Paul Ruggle,** Newton, and **Dr. John H. Roberts,** Sioux City, have been named Fellows of the American Academy of Family Physicians. **Dr. Janet E. Smith** has joined the staff at Northern Iowa Urological Associates, PC in Waterloo. Dr. Smith received the M.D. degree at the U. of I. College of Medicine and served her residency at the University of Wisconsin Hospitals and Clinics in Madison. In addition, Dr. Smith became an Endourology Fellow at the University of Philadelphia Hospital in Pennsylvania. **Dr. Lloyd J. Filer, Jr.,** Professor Emeritus at the U. of I. College of Medicine, was awarded an Honorary Membership in the American Dietetic Association at the group's 70th Annual Meeting in Atlanta, Georgia.

Dr. Jon Gregory Thomas will begin medical practice in Logan. Dr. Thomas received the M.D. degree at the U. of I. College of Medicine and was associated with the Parker Family Practice in Arizona. **Dr. Glendon Button,** Conrad, was honored at a dinner for his 24 years of service to the Conrad community. **Dr. Ellen B. Roose** has joined the practice of **Drs. Robert and Gary Valestin** in Des Moines. Dr. Roose received the M.D. degree at the U. of I. College of Medicine and completed her obstetrics and gynecology residency at the University of Illinois in Chicago. **Dr. Ron Shirk** and **Dr. Kelly Bast** have been appointed to the Board of Trustees at Charter Community Hospital in Des Moines.

Deaths

Dr. Gordon Rock, 66, Davenport, died September 28 at St. Luke's Hospital in Davenport. Dr. Rock received the M.D. degree from Creighton University School of Medicine in Omaha, Nebraska. He was a life member of American College of Obstetricians and Gynecologists.

Dr. Donald Clare Koser, 79, Cherokee, died October 1 at his home. Dr. Koser received the M.D. degree from University of Nebraska School of Medicine. He began medical practice in Cherokee in 1938, retiring in 1986. Dr. Koser served as Cherokee County medical examiner from 1960 until 1985.

Classified Advertising

CLASSIFIED ADVERTISING RATE — $2 per line, $20 minimum per insertion. NO CHARGE TO MEMBERS OF IOWA MEDICAL SOCIETY. Copy deadline — 1st of the month preceding publication.

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FAMILY PHYSICIAN NEEDED — Immediate need for BC/BE Family Physician to join 2 established Family Physicians in private practice in N.W. Iowa community of 5,000. Modern clinic across the street from JCAH hospital. Excellent salary and fringe benefits with partnership opportunity. Locum tenens opportunity available also. Call collect 712/324-2511 or contact Sheldon Medical Clinic, 206 North 7th Avenue, Sheldon, Iowa 51201.

OBSTETRICIAN/GYNECOLOGIST — Marshfield Clinic is seeking a board certified or eligible obstetrician/gynecologist to join its expanding regional center in Chippewa Falls. Chippewa Falls is a community of 15,000 people located in beautiful west central Wisconsin with a wide range of recreational, educational, and cultural opportunities easily accessible. The clinic is adjacent to a 110-bed JCAH accredited hospital. Marshfield Clinic is a 250-physician, multi-specialty private group practice offering a very competitive salary and fringe benefit package. Send curriculum vitae and references to Bob Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or you may call collect at 715/387-5498.

GENERAL INTERNAL MEDICINE — Marshfield Clinic is seeking a board certified or eligible general internist to join its expanding regional center in Chippewa Falls. Chippewa Falls is a community of 15,000 people located in beautiful west central Wisconsin with a wide range of recreational, educational, and cultural opportunities easily accessible. The center currently includes three internists. The clinic is adjacent to a 110-bed JCAH accredited hospital. Marshfield Clinic is a 250-physician, multi-specialty private group practice offering a very competitive salary and fringe benefit package. Send curriculum vitae and reference to Bob Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, WI 54449 or you may call collect at 715/387-5498.

GENERAL SURGEON, FAMILY PRACTICE and INTERNAL MEDICINE SPECIALISTS — to join eight-doctor family practice clinic in Cloquet, Minnesota, a community of 12,000 (30,000 service area) located 20 minutes from Duluth-Superior. Clinic facility is located one block from modern, well equipped 77-bed hospital. Cloquet enjoys a stable economy (forest products). Additionally, our community is noted for its excellent school system. First year salary guarantee, paid malpractice, health and disability insurance, vacation and study time. Contact John Turonie, Administrator, Raiter Clinic, Ltd., 417 Skyline Blvd., Cloquet, Minnesota 55720. Telephone 218/879-1271.

FAMILY PRACTICE — Unique opportunity in outpatient Family Medicine. Marshfield Clinic is seeking a Board Certified/Eligible Family Practitioner to join its expanding Center in Mosinee, Wisconsin. The Center is currently staffed by three Family Practitioners and a physician's assistant. Full specialty consultation is readily available. Emphasis on quality lifestyle is combined with excellent compensation and fringe benefits. Send curriculum vitae and references to Richard G. Nash, M.D., 607 13th Street, Mosinee, Wisconsin 54455 or call collect 715/693-6711.

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In the Public Interest

A Legislative Laundry List

A KEY COMPONENT of the Iowa Medical Society's annual program is active involvement in the legislative process. In keeping with goals first articulated by the Society's founding physicians, the IMS traditionally concerns itself not only with legislation that will affect physicians, but with legislation that will affect patients as well.

Here is a partial list of proposed legislation which is of interest to the public. . . .

MOPED SAFETY — Sponsored by Rep. Don Shoultz (D), Waterloo, this IMS bill would increase from 14 to 16 the minimum age to receive a motorized bicycle license. The bill also requires persons under age 18 to successfully complete an approved motorized bicycle education course which includes a practical test of ability to control the vehicle.

SEAT BELTS — Legislation may be introduced during the 1988 session to repeal Iowa's seat belt law. IMS physicians believe strongly that seat belts save lives. The IMS opposes repeal of the seat belt law.

TOBACCO SALES TO MINORS — This IMS-backed bill raises the legal age to purchase and possess cigarettes from 18 to 21. It raises the penalty for a person who sells or gives cigarettes to a person under age 21 to a serious misdemeanor for the first offense and an aggravated misdemeanor for subsequent offenses. The bill also prohibits sale of cigarettes in vending machines.

AIDS — Though no legislation has been generated yet by the legislature's study committee on AIDS, the IMS will closely monitor any future proposals by the committee to ensure they properly balance the needs of patients and society.

EXPANSION OF PRACTICE ACTS — The IMS continues to be concerned by proposals of limited health care practitioners to legally expand their scope of practice into areas in which they are inadequately qualified to give optimal care. In 1988, podiatrists will ask the legislature to allow them to diagnose, treat and prescribe medications for "ailments of the foot and those anatomical structures and ailments of the leg governing functions of the foot." Physical therapists will again seek to provide physical therapy evaluations and treatment without a prescription or referral.

MANDATORY MEDICARE ASSIGNMENT — This is legislation requiring that, as a condition of licensure, physicians who treat Medicare patients must accept the Medicare approved reimbursement as payment in full. The American Association of Retired Persons, Iowa Chapter, has registered its opposition to this legislation. The IMS is concerned this bill imposes a condition on state licensure that has no relationship to the fitness or ability of a physician to practice medicine. The Society is also concerned that, because the reimbursement level is so low, the law would result in fewer physicians being willing to treat Medicare patients. The IMS favors a plan now under consideration which would assure that physicians would voluntarily accept the Medicare approved amount as payment in full for those elderly Iowans who are unable to pay the regular fee.

Because so many groups are involved with health care delivery these days, involvement with every piece of proposed health care legislation is an increasing challenge. However, the Iowa Medical Society wants to do everything possible to ensure that patients' welfare is the most vital consideration for Iowa lawmakers.

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